Driving business agility with cloud center of excellence

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enabling organizations to harness the true value of cloud. "Cloud CoE can make a huge difference to the success of cloud transformation by shaping the vision, defining the strategy, establishing the governance, and accelerating transformation." Cloud CoE can make a huge difference to the success of cloud transformation by shaping the vision, defining the strategy, establishing the governance, and accelerating transformation. Strong cloud governance is important in addressing the challenges of cloud adoption and managing the cloud as part of 'shared responsibility' model with cloud service provider. Companies that have adopted a cloud CoE report that they have benefited in areas of efficiency (53%), accountability (45%), security (45%), governance (43%), cost management (41%), easier auditing processes (30%), and more accurate chargebacks (25%). The construct of cloud CoE spans from 'team of experts' to 'fully functional cloud CoE with exec sponsorship', which can enable organizations to maximize their value and reduce risks. A central model, where the cloud CoE operates through a central function, is particularly useful for smaller organization to drive pace. In a federated model, typically in larger organizations, the local cloud teams work closely with their respective business or functional units and collaborate with the central CoE. The debate between adopting a 'central model' or a 'federated model' for cloud CoE continues and is never ending. It's not 'one size fits all'— organizations need to evaluate the model that is likely to work best for them and continuously adapt and evolve to improve the maturity of the model. Being relevant A cloud CoE must stay relevant by bringing a convergence between the long-term objectives (top-down) and immediate priorities (bottom-up), leading to a strong foundation that supports future strategy and mitigates risk and rework. A CoE built with a top-down execution mindset can outline policies, establish guardrails, and ensure alignment to business objectives. But if its focus is only on policy and governance, it risks losing significance and support from the ground teams performing migrations. Staying connected by engaging stakeholders A cloud CoE must seek representation and involvement from business for its operations. This helps in awareness of standards and policies to improve buy-in and compliance to the cloud transformation initiative. Building a strong team Various skills ranging from cloud experts to business specialists are required for the effective functioning of cloud CoE. A holistic approach to source multi and hybrid cloud skills from external partners and conducting training sessions to upskill existing workforce helps to address the situation. Continuously innovate to make a difference A cloud CoE must invest time and resources to continuously navigate through the market to identify digital capabilities that can be leveraged to innovate and build ecosystems of the future. Connecting the dots, a cloud CoE fosters environment for business and engineering teams to explore, experiment, and innovate in bringing the best of the outside world within the organization's context. Transforming culture Cultural transformation is an on-going process and a cloud CoE should anchor this in the organization with support from executives. Culture transformation involves communication, collaboration, and upskilling the existing workforce through formal training and informal learning through communities of practice. A cloud CoE must engage the security and risk groups within an organization to understand the hybrid landscape and ensure identification and mitigation of risks. Lastly, it is the cloud CoE's onus to create innovation opportunities to motivate the workforce and catalyze cultural transformation. Conclusion

An outside-in holistic perspective and recommendations help to eliminate the subjectivity in following these best practices and benchmark the organization with the competition. Cloud technology experts with pan-industry expertise and deep contextual knowledge of your enterprise can help you set up a cloud CoE that can meet your business priorities. Looking to turn purpose into action? Theme Font size Line height
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Reimagine people experience with a tech-driven approach

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Rao G. Head, Design and Innovation, CTO Office, Services, Technology, Software and Services, TCS You have these already downloaded We have sent you a copy of the report to your email again. As talent wars intensify, companies no longer see investments in employee experience as just a cost item. Many look at employee experience as a top priority that directly impacts their top line and bottom line. Strategic people experience initiatives by the world's leading companies point to this shift in mindset. In a post-pandemic world where people's needs and priorities have changed, every company needs to realize that flexibility, purpose, the power to exercise choice, and the personalization of work to accommodate personal and professional goals matter to today's workforce. Making these part of their work culture is critical for organizations to deliver seamless employee experiences and support employees in the moments that matter to them. It is also critical for organizations to strengthen their brand value and position themselves as 'irresistible organizations'—or what a study published by TCS, in collaboration with the Josh Bersin Academy, describes as places that employees want to join and that rivals want to emulate. In people experience-driven organizations, we are seeing a trend of HR-led mass policies being replaced by a personalized approach centered around employee personas—one that empowers people to exercise their choices in career and life, roles, locations, work schedules, learning, and well-being. There is no doubt that investing in the holistic platforms and solutions that help deliver great employee experiences makes good business sense. Several studies have indicated that happy employees lead to superior customer experiences, increased productivity, better talent attraction, and employee retention. In the long run, it leads to higher brand value, higher revenues, and greater growth. So, how can organizations create the right people experience? We recommend a framework for a technology-led people experience transformation that cuts across all dimensions of work and workplace, and helps organizations become future-ready enterprises. Our framework focuses on personalization, authenticity, responsiveness, transparency, and simplicity—value propositions that every HR function and organization needs to attract and retain employees. The framework also identifies seven key areas that people-centric enterprises need to focus on to deliver on these value propositions and address the needs and aspirations of employees. These are: accessibility, connections, growth and development, simplified windows of engagement and collaboration, communications, intuitive intelligence, and well-being. As shown in figure 1, each key area is mapped to a corresponding subset of functions and capabilities that are needed to enable a sustainable people experience for the current and future needs of employees and organizations. A depiction of the functions and capabilities needed to create a sustainable people experience—one that focuses on meeting the current and future needs of employees and organizations. Apart from five things—personalization, authenticity, responsiveness, transparency, and simplicity—it highlights seven key tenets of people experience: accessibility, connections, growth and development, simplified windows of engagement and collaboration, communications, intuitive intelligence, and well-being. The framework aligns well with both current and emerging trends in reimagining people experience. While the framework shows the path organizations can take, we believe focusing on two sets of levers—people and technology-driven change—can accelerate this journey and ensure a successful transformation. A reimagination of the

people experience needs to be people-led as well as technology-driven. A people-led reimagination requires the following: Technology must assist employees throughout their work and be available when needed. Technology plays a major role in a people experience transformation. A connected tech architecture can provide employees with the necessary tools, resources, and support they need to accomplish their goals. Depending on their needs, priorities, and appetite for change, organizations can choose from and leverage a variety of tools and technologies to elevate people experience. We believe enterprises embarking on a tech-driven people experience transformation need to focus on the following: Organizations must evaluate solution options, technologies, and architecture for the functional and technical capabilities needed. Also, the focus should be on using technology to reduce friction but not at the cost of losing the human touch where it makes a difference. Technology should be used only where it makes sense to use it, maximizing digital dexterity while minimizing technology friction in consumer grade solutions. There is no 'one size fits all' approach for a people experience transformation. With the extent and nature of how a transformation can vary between organizations—some taking a big-bang approach while others opt for a more incremental approach—each transformation requires a unique strategy. However, by treating employees as ambassadors and empowering them with hyper-personalized policies, and tools and resources for flexible, purposeful work-life management, organizations can create meaningful employee experiences. This would deliver value for all—not just for employees, but for the organization, customers, and shareholders as well. People experience transformation starts with a strategic leadership vision and involves a reimagination of the employee journey from human-centric perspectives. It entails defining blueprints encompassing the people, policy, process, functional and technology capabilities; identifying technologies and solutions to build the required capabilities or address gaps; and implementing a road map of initiatives. It calls for consulting and problem-solving to define and execute a people experience strategy; a design thinking-led reimagination and personalization of employee journeys; defining the technology architecture; solution mapping and implementation; and agile transformation management. An ecosystem of alliance partners is required as well, including providers of the best-in-class digital workplace and collaboration tools, talent intelligence, metaverse solutions, and next-gen learning platforms. Enterprises should factor in these things before embarking on their people experience transformation and choose trusted partners with relevant experience to accelerate the journey. times more likely to engage and retain employees. times more likely to delight customers. times more likely to innovate effectively. How Digital Workplaces Can Improve Business Results How empathy can improve performance management TCS Accelerated Adoption Approach for Microsoft 365 Copilot Intelligent workforce and wage planning for optimized SG&A expenses Looking to turn purpose into action? Theme Font size Line height
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Supply Chain Transformation: Going Digital to Build an Agile Ecosystem

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questions and uncertainties are amplified by the fact that no one knows how long the downturn will last and what the post COVID-19 scenario will look like. Any number of scenarios is possible. There could be a wave of acquisitions, a shift toward more local supply chains, a permanent shift away from brick-and-mortar retail and physical workplaces, government incentives that drive the move to tax-efficient supply chains. While no one can predict the exact nature of these structural changes, it is clear that supply chains that are resilient and adaptive in the face of unpredictable risks can be built on the basis of speed and agility – instead of inflexible cost optimized processes. Going Digital If agility and adaptability are the keys to resiliency, then digital technology is the principal enabler. Let's look at some use cases: To reduce exposure to demand forecast errors, firms can decrease lot sizes and lead times through factory automation using a combination of industrial robotics and distributed IoT sensors. 3D printers can facilitate both individualized products with a lot size of one as well as on-demand production of slow-moving items that are typically a drag on working capital when they are held in inventory for 'just in case' demand. The natural language processing (NLP) capabilities of artificial intelligence (AI) can be used to scan social media to gain early warning insights about potential demand spikes driven by positive external events or demand collapse due to negative influences. Machine learning (ML) can be used to derive correlations between external events (weather, interest rates, commodity prices, unemployment rates, and so on) and business drivers such as product demand or input costs. These correlations increase the accuracy of forecasts and, coupled with reduced lead times, they serve to greatly enhance the efficiency of sourcing, production, and distribution operations. In pharmaceutical drug development, the move to 'in silico' discovery versus 'in vivo' testing on live subjects has greatly expanded the range and speed of modeling and discovery. A lab at MIT recently used AI to screen over 100 million molecules in just three days to isolate 23 compounds for new treatments to antibiotic-resistant diseases. Similarly, supply chains can accelerate modeling within silico 'digital twins' for everything from key pieces of equipment such as turbines for energy production, to entire global distribution networks with all sources, connections, and destinations available for 'what if' scenarios. This type of model allows for both robust planning for an uncertain future and for rapid response development when an unforeseen event occurs. The key ingredient for building digital twins is data. End-to-end supply chain data access and visibility are essential for knowing both how and when to respond to threats and opportunities. To capture this data and channel it into dashboards and advanced analytics and simulation tools, a variety of technologies come into play. Cloud infrastructure, microservices, and application programming interfaces (APIs) can facilitate the rapid aggregation and integration of disparate data sources. Blockchains, IoT sensors, and telemetry can provide track and trace capabilities as items change location and ownership. Data visualization tools, including augmented reality (AR), can quickly highlight breakdowns and threats to continuity in the end-to-end flow of products and focus efforts on the areas of greatest risk or greatest opportunity. Building Resilient Supply Chains It is through the integration of these technologies into intelligent supply chain ecosystems that the greatest potential for an optimized mix of adaptability, efficiency, and resilience can be realized. Real-time collaboration with suppliers and customers creates the basis to deliver

the right product, at the right time, and at the right cost regardless of the unpredictable threats and opportunities that will continue to emerge. In summary, global supply chains have experienced a sudden shock and we can expect structural changes in operating strategies during and after the recovery. The imperative to optimize costs for a perceived predictable and stable environment is no longer sufficient. We cannot know the nature of the changes coming our way, so we must be prepared to be resilient, agile, and adaptable in the face of this uncertainty. The thoughtful application of mutually reinforcing technologies deployed in support of a coherent and consistent strategy is our best way to achieve a cost-effective, resilient, and agile supply chain. The TCS Promise – Help for the Long Haul TCS has deep expertise and experience across digital technologies such as AI, IoT and analytics besides contextual knowledge of industry priorities in supply chain transformation. We have partnered with enterprises across industries to provide end-to-end supply chain transformation support. TCS solutions include Supply Chain as a Service, Supply Chain Control Tower, Supply and Supplier Reliability, Supply Chain Analytics, Inventory Optimization, Supply Chain Planning. If you'd like to rethink your supply chain for the post-COVID world, please write to Joel Butler. Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? =====================

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manufacturing. TCS offers support from strategy, planning, and control, to sourcing and procurement, to logistics and fulfilment, enabling you to grow

market share, reduce costs, and improve customer experience. TCS helps you strategically plan and effectively manage your dynamic supply chain ecosystem to enhance performance. BENEFITS Leverage new digital technologies, advanced manufacturing methods, and analytics Align operating strategy and business model to organization strategy Improve the ability to forecast and plan with greater transparency in margins Drive supply chain adaptability and agility in a changing environment Improve visibility, predictability, and reliability in operations Reduce overhead by harnessing variable cost delivery models   Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action?
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Your purpose, your cloud strategy and transformation

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shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. We believe that the future of enterprise is in the cloud. We can help you respond rapidly, optimize cloud spend, and monitor value realization, while orchestrating a sustainable ecosystem and accelerating profitable, purpose-driven growth. Build your future with TCS cloud strategy and transformation services. Plan and build a modern business platform enabled by cloud and new technology. Increase agility to adapt, evolve, and respond to threats and opportunities. Generate revenue from new digital and data solutions. Improve net promoter score via mass personalization. Drive exponential revenue growth via sustainable business models. Create seamless integration across the business ecosystem. Transform talent to empower relentless innovation. Multi-cloud transformation Digital core optimization Business model innovation Ecosystems integration Our cloud strategy and transformation consultants help you find your future faster by leveraging both structured and one-of-a-kind services. 01. Digital transformation Digital maturity assessment Business operating model—digital reimagination Industry cloud Digital integration UX personalization 02. Multi-cloud transformation Cloud maturity and adoption assessment Cloud platform engineering Legacy mainframe modernization Cloud business case modeler FinOps Cloud operating model Cloud design authority and Devops 03. Data analytics Data strategy assessment Data governance and implementation Data modernization and analytics 04. Transformation management office The future belongs to businesses that embrace digital and cloud transformation. Accelerating the journey requires a trusted partner that can pave the way. Let's build your future together. Parthiv Shah TCS Aviana™ Helps United Airlines Get Off to a Flying Start Cardinal Health stands steady on COVID-19 battlefront Cloud migration strategy: How Foxtel transformed its digital landscape TCS' application management services helps BT improve CX No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height
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TCS Digital Lab

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TCS Ransomware Control Matrix

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good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Step up your cyber defense against ransomware attacks You have these already downloaded We have sent you a copy of the report to your email again. Ransomware operators conducting data theft and extortion campaigns increased by 20% in 2022. Ransomware attacks are unrelenting and becoming more sophisticated as malicious cyber actors increasingly exploit vulnerabilities in enterprise software applications. Ransomware-as-a-Service is expanding and allowing a wider range of threat actors to become ransomware operators. Companies across industries can become targets. Those with deep pockets or that are under extra pressure to avoid operational disruptions, such as those in critical infrastructure, are especially likely to be prime targets. Those with deep pockets or that are under extra pressure to avoid operational disruptions, such as those in critical infrastructure, are especially likely to be prime targets. The healthcare sector, considered to be a critical service provider, has received advisory notices from US cybersecurity officials because of increasing threat from ransomware groups. Government services too are not immune. Ransomware operators attacked the UK postal service and it took 20 days before international mail service was fully restored. Ransomware can cost an organization dearly. Some of the costs are direct like the $457 million handed over by ransomware victims globally in 2022. Other costs are indirect, such as the economic impact on partners and suppliers, as well as reputational damage and lawsuits.   Strengthen your defense against ransomware attacks. TCS Ransomware Control Matrix provides a systematic and comprehensive approach to identify, assess, mitigate, and protect against ransomware attacks early on. It helps enterprises navigate the

complexities of the global cyberthreat landscape while taking proactive, risk-informed strategic decisions to defend their enterprise. The framework helps enterprises: Assess ransomware readiness: Reveals opportunities to improve enterprises' defense against ransomware attacks by comparing existing security controls against world-class standards. With cybercriminals constantly evolving their tactics, techniques, and procedures, this addresses the increasing difficulty in detecting and containing attacks. Detect and mitigate ransomware: Provides simplified and detailed steps enterprises can take to quickly assess and improve ransomware detection and mitigation capabilities by highlighting security control gaps and suggesting remediation measures. Moreover, it provides best practices and a common language, leveraging widely used cyber defense nomenclature, to discuss and address ransomware and associated challenges. Align with global standards and best practices: Offers flexibility and adaptability to fit the specific needs of organizations while adhering to global standards. addresses both the technical and operational aspects of defending against ransomware attacks. Its design is based on globally recognized cybersecurity frameworks such as those provided by the National Institute of Standards and Technology (NIST), MITRE ATT&CK (Adversarial Tactics, Techniques, and Common Knowledge), and MITRE D3FEND (Detection, Denial, and Disruption Framework Empowering Network Defense) which is a knowledge graph of cybersecurity countermeasure techniques. Manage ransomware threats: Enables a foundational level of cybersecurity controls that provide a basic degree of protection and moves to advanced and elite levels of controls that build on each other and provide increasingly specialized protection. At all levels, the cybersecurity controls are divided into two categories: measures for detection and mitigation. Identify cybersecurity gaps to get ahead of ransomware threats. With Ransomware Control Matrix, organizations can identify cybersecurity gaps that are frequently unnoticed and exploited by ransomware groups to gain access to organizations' networks. They can: Recognize, assess, and mitigate the risk of ransomware attacks. Analyze critical elements of the business ecosystem that are prey to malware. Understand the full spectrum of attack vectors as malicious actors evolve their tactics and techniques. Reduce the risk of ransomware attacks by implementing security controls identified by the framework to detect and mitigate malware. Reduce risk of business disruption and data loss, averts possible negative media coverage, and avoids damage to organizational reputation. Protect their business operations and bottom lines. Partner with TCS to take advantage of our capabilities and expertise. TCS practitioners have decades of proven experience managing threat intelligence at our clients both in the public and private sectors. We have a dedicated team of certified, industry-leading analysts with deep expertise in in MITRE ATT&CK, MITRE D3FEND, and NIST frameworks to help enterprises analyze their IT and security ecosystems as well as the cyberthreat landscape. TCS is a key global managed services security provider and a member of the International Counter Ransomware Initiative (CRI) that recognizes the power of cooperation across 36 countries, the European Union, and key industry partners to combat ransomware on a global scale. Cyber security in education: How a robust IAM program can help The Making of a Cyber Resilient Organization Building cyber resilience with a zero-trust approach Ransomware protection: Organizations' cyber defense against malware

Develop the right M&A strategies to gain a competitive edge

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customers, compete more fiercely, and eliminate assets that no longer enable competitiveness. Based on our experience, we have identified four dominant M&A strategies. Most companies embrace one as its primary M&A strategy and are opportunistic in the others: Optimizers focus on improving existing products, services, and business practices to maximize customer satisfaction and profitability. Transformers take an inside-out approach, seeking incremental innovation on existing or improved technologies, to actively capture new customers and markets. Explorers take an outside-in approach, investing in leading-edge technologies and external innovation partners to expand customer capture and create new industries. Revolutionaries take the boldest steps. They seek ways to disrupt and cannibalize so that they can take on new competitors, capture new markets, and create new industries. Successful M&A is a combination of good strategy and great execution. TCS recommends an approach, such as the FITME framework, which can help companies evaluate options and create the M&A strategy that's right for them. An illustration of the FITME framework for developing a strong M&A strategy. Whether they are Optimizers (that focus on improving existing products and services to maximize customer satisfaction and profitability), Transformers (that take an inside-out approach, seeking incremental innovation to actively capture new customers and markets), Explorers (that take an outside-in approach, investing in leading-edge technologies and external innovation partners to expand customer base and create new industries, or Revolutionaries (that seek ways to disrupt to take on new competitors, capture new markets, and create new industries), companies can use the framework to get their M&A strategy right. With the right balance of focus, innovation bias, tech strategy, market interaction, and ecosystem emphasis, they can create a strategy that fits their company's growth and risk profile. In today's world of low-cost capital, competition for M&A opportunities can easily come from competitors willing to make decisions with limited data. Accelerating deal due diligence is crucial. To speed up the process: Build a trusted M&A advisory team with the right industry, operational, and technology knowledge to be engaged at the earliest stages of M&A exploration. This team will likely be a combination of internal and trusted third-party experts. Establish risk thresholds to address unknowns. Managing risk is a part of evaluating every M&A opportunity, especially when acquiring cutting-edge technologies or entering new markets. Companies waiting for concrete answers will likely find themselves out-flanked by more nimble competitors. Defining likely risks and rapidly testing 'Go-No Go' tolerances will accelerate decision making. Give the CIO a starring role. Business and supporting systems are no longer separate considerations. IT cannot make an M&A deal, but certainly can break one. When it comes to the potential system impact of an M&A opportunity, the best person to make that judgement is generally the CIO. Engaged early, the CIO can quickly assess compatibility and identify pitfalls and deal breakers. Formalize your playbook. Every company should have an M&A playbook that scripts the activities for due diligence, M&A planning, financial modeling, execution, and synergy management. A good playbook also describes the roles, both internal and external, to execute these scripts. For due diligence, pre-defined assessment and analysis frameworks can greatly accelerate the process. In business, time to market is everything. Creating the M&A strategy that fits your company's growth and risk profile will provide clarity

on where to capitalize on opportunities that enhance competitiveness. Then, by adding your own due diligence accelerators, you can quickly evaluate and exploit the M&A opportunities that best advance your strategic ambitions and business outcomes. Susan Blesener Rex George Vinayak Gole Nikhil Patwardhan Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height

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Leveraging big data analytics for M&A value creation

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of the report to your email again. Inflows of private equity (PE) funding is driving ever-higher volumes of acquisition. PE acquisition however differs from a traditional merger: PE firms focus more on target-specific profitability (more revenue, less cost) and perhaps less on longer-term, organizational structure-based integration. In parallel, better computational capabilities, or big data analytics provide new opportunities for acquiring companies – mainly PE, but also traditional firms – to improve integration processes, and accelerate value capture. However, much of this new analytical capability and power remains focused on target identification and the subsequent pre- and post-sign due diligence. According to a HBR study, about 70–90% of companies undergoing integration fail to achieve the desired outcomes of such deals. Critical as this is, a largely untapped opportunity exists to leverage big data analytics in the longest, most complex part of a merger, acquisition, and divestiture: realizing the projected synergies that underpinned the transaction and valuation model. A 'hidden prize' lies unclaimed as acquirers don't use analytics fully in the post-signature phases of large deals. The prize is faster realization of revenue synergies. These get 'second billing' behind cost synergies, often because CFOs and COOs focus on immediate and tangible results, rather than potential outcomes. Revenue synergies, by their very nature, depend on far more factors, all with an inverse degree of certainty. Tracking synergy is hard in the maelstrom of deal closure, and a heavy tracking load falls on financial planning & analysis (FP&A) teams. FP&A can generate vast pools of data in systems and processes of a comprehensiveness unthinkable 20 years ago. However, data are often retrospective, operational in focus, and not good predictors of future performance.   Achieving (or even exceeding revenue synergy targets) in valuation models requires a more profound behavioral change. Take for example, a recent financial services merger in Europe. On paper, the deal offered a compelling strategic rationale based on market share consolidation, generating appreciable synergies – both cost and revenue. To ensure a positive return for year one, the initial focus of post-deal integration effort was on driving out the diligently calculated cost synergies. Revenue synergies would come by cross-selling through a combined, enhanced portfolio. However, 18 months into integration, this growth had not materialized. Merging systems, processes, and sales teams proved far more complex than expected, in turn delaying recognition of actual and potential client losses. Retrospective analysis and time-consuming account reviews revealed corrective actions needed to stem the consumer attrition going forward, but they could not mitigate the damage already done.   In this case, and others we have seen, we believe capture of revenue synergies could have been planned and executed differently. Existing data and analytics solutions inside firms, primarily in the FP&A space, should be used additionally to speed up and make more accurate synergy realization as well as increase profitability by identifying the 'magic beans' of cross-selling to expand share of wallet. Our big data analytics-related recommendations for maximizing revenues during integration include: 1. Anticipate and prevent consumer attrition Rather than react to consumer leakage after it is tracked post Day 1, best practice M&A teams should include processes supported by analytics to spot the changes in consumer behavior and drive engagement to prevent loss. Signals such as increased requests for online access to terms and conditions or jumps in customer services calls from specific types of clients could indicate an

opportunity to engage sooner rather than later to reduce dissatisfaction or solidify satisfaction. 2. Assess changes in consumer consumption patterns Joint M&A and FP&A teams should monitor each step of the buying cycle, for both the end and any intermediary consumer. Track variations in completion rates, expressions of interest and even 'hit' levels on front-end web pages. Evident changes in consumption patterns will indicate customer willingness (or reluctance) to engage with a firm's 'new' or added portfolio offerings. 3. Prioritize integration activity for greatest growth Using analytics at a more granular level during the first 100 days, sales leaders can focus scarce integration capacity on products, which can accelerate the revenue synergies in the deal model. This is simple math: earlier, higher revenue inflows translated directly to increased shareholder value. New, targeted marketing campaigns along with agile sales teams and go-to-market processes all supported by scalable systems infrastructure with planned and prioritized change could contribute majorly to faster growth. 4. Thwart the competition The complex work of M&A integration usually takes 12 months or more to stabilize operations. During this time, incumbents and disruptors in the markets in which the buyer and seller compete typically do not shy away from attempting to take advantage of any perceived or actual changes in the value proposition by the merging organizations' clients or consumers. In the case of the European financial services merger, local firms previously unable to compete did just that. Deal-specific analytic capabilities designed to identify clusters of 'at risk' customers – be they geographic or demographic – based on changed behavior would have enabled proactive, orchestrated efforts to retain them in advance of potential losses. CxO and integration teams, especially from the private equity sector would benefit from the application of big data analytics to help maximize revenue (and cost) synergy realization. Whether built in-house or provided through trusted technology partners, big data analytics is increasingly a 'must have' competence to identify and negotiate diversity of behaviors across industry sectors as boundaries blur and ecosystems change as a result of this increased M&A activity.   Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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Integration cost management is the key to success

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degrading deal value, CxOs must balance the degree, difficulty, and duration, or the 3Ds of integration. Degree ranges across a scale of 'autonomous to full' and applies to each of the vertical and horizontal business capabilities. Difficulty is measured by the complexity of TOM's configurability; the higher the customization required, the higher the costs. Duration, or speed of integration, is influenced by deal constraints, both controllable (e.g., funding, talent, and technology debt) and not controllable (e.g., legal/contractual limitations). In harmonizing the 3Ds, business and IT executives must strive to optimize the operating cost posture, maintain culture and morale, and achieve profitability objectives. Severance, which typically accounts for a large part of integration costs, is an early identifiable factor. Robust governance and tracking of the talent-related expense is essential pre- and post-day 1 and must be part of an effective integration strategy and management office. The size and sector of an M&A transaction shed light on expected integration costs as the percentage of a deal value. Ranging from 1 percent to 10 percent, integration costs inflect at the $1 billion, $5 billion, and $10 billion deal size points, correlating with annual operating spend ratios. Smaller deals typically have higher proportionate costs due to regulatory filings, technology, and advisory fees, while mega deals (which have surged in the last few years) often involve lower costs relatively. Sectors with high degrees of safety and quality standards, R&D, or both usually have higher proportional integration costs. Designing the optimal TOM and integration strategy is essential to effectively managing costs during the transaction and sustaining profitability long after it has been completed. Planning and executing M&As must become a CEO-driven competency, whether in-house or by leveraging third parties. M&A planning and execution 'playbooks' should specify integration model options (i.e., absorption, best of breed, evolution, and preservation). It should outline when best used by strategic goal, deal size, and target sector, severance, and critical degree, difficulty, and duration-managing success factors. As a fast-forward mechanism for digital transformation in an era of ecosystems, finding, assessing, and integrating M&A cost effectively is the new competitive advantage. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

How cloud services streamline M&A execution

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M&A with cloud Multifold advantages Optimized integration Future prospects About the author Stay in the know TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Gerard Mcauliffe Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Gerard Mcauliffe Engagement Director, M&A Services, Consulting, TCS You have these already downloaded We have sent you a copy of the report to your email again. Cloud is a game changer in mergers and acquisitions (M&A) execution. Executing M&A transactions and divestments involves complex processes that require significant time, resources, and expertise. By unlocking cloud's transformative potential, organizations can simplify and accelerate M&A deal execution. It's a significant, multi-year transformation journey that changes how work is carried out, modifies how businesses are run, and impacts core business processes for organizations. To derive maximum benefits from a deal execution, organizations need to choose cloud services that meet the specific and time-critical needs of the M&A deal. While traditional infrastructure and services delivery time frames are time-consuming, cloud allows for services to be deployed in minutes. Although enterprise controls extend these timelines, using cloud technology makes the end-to-end process quicker. Two cloud services are most suited for M&A execution. The first, infrastructure-as-a-service (IaaS), offers scalable and flexible IT infrastructure to optimize on-demand computing resources during M&A activities. Another, software-as-a-service (SaaS), makes available ready-made applications and services for consumption. These include collaboration tools, document management systems, and project management platforms for seamless communication and coordination among stakeholders during M&A activities. Cloud services provide greater

speed of delivery, enhanced security, and compliance, and more in M&A deal execution. It's critical to move at speed and meet challenging deadlines agreed with market and senior stakeholders when executing M&A transactions. With cloud services, organizations can: Cloud offers a basis for longer-term, post-transaction integration beyond Day 1. The realization of cost savings and synergy indicates the success of most M&A transactions. Organizations that leverage cloud services can demonstrate these benefits faster after transactions. The speed, agility, and scalability of cloud gives post-merger organizations an unparalleled opportunity to deliver consolidation and integration wins. New entities should identify workloads and functions where integration brings the most value and accordingly make initial investments. This will allow them to deliver quicker wins, communicate a significant success story—both internally and externally— and build support for the merger. Moreover, the scalability and flexibility of cloud allows them to adjust infrastructure and services to meet changing business needs, avoiding unnecessary commitments and wasted sunk costs associated with traditional technology infrastructure and services that rely on capital investments. Organizations can accelerate M&A execution and optimize post-transaction integration with a cloud strategy aligned with their M&A goals. Cloud platforms and tools can support M&A deals in all stages of the deal life cycle. This not only accelerates execution, but it also helps realize benefits post-transaction. Organizations can streamline due diligence, enhance data security, and optimize post-transaction integration with cloud infrastructure, applications, and services. For the best results, organizations should put in place a cloud strategy aligned with their M&A goals, considering factors such as data security, integration requirements, and post-transaction scalability. When implementing this strategy, organizations can team up with partners that can help them with valuable insights, knowledge of M&A, and technical expertise. The execution of M&A deals calls for speed, flexibility, and eliminating unnecessary effort and costs. Therefore, organizations need to adopt cloud not just for their core operations, but also to accelerate and simplify M&A deal execution. Hybrid cloud strategy Suntory consolidates global IT infrastructure to drive digital transformation, intra-group synergy TCS Enterprise Cloud Helps Howmet Achieve Business Restructuring Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

Versuni becomes a digital-first company with TCS' help

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foundation for Versuni to become a digital-first, insights-led company. Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related content Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Using SAP as the digital platform, TCS helped Versuni transform processes for HR, finance, sales, distribution, customer care, and product development. You have these already downloaded We have sent you a copy of the report to your email again. Working with TCS, Versuni transforms in just 18 months. When Philips Domestic Appliances was sold in 2021 to the private equity firm Hillhouse, the new stand-alone company partnered with TCS with the goal of becoming consumer-focused, agile, and innovation-led. TCS provided a full life cycle of services, from strategy and advisory to execution and operations, to help the company— now known as Versuni—realize its strategic vision. This partnership created a comprehensive, future-ready foundation within a rapid 18-month timeframe. With SAP as the new digital platform, TCS helped Versuni transform its end-to-end HR processes, finance, sales and distribution, procurement, customer care, supply chain, product development, and other critical areas across its global operations. This program provided Versuni with: This transformation program won Versuni the SAP Innovation Award 2023 in the Industry Leader category for driving innovation and delivering customer value transformative solutions. The award recognizes the successful TCS-Versuni partnership for the significant impact and scale this growth and transformation program created.   TCS helped Versuni, formerly Philips Domestic Appliances, transform its business process and technology foundation to become an insights-led, digital-first consumer products company. The transformation was backed by one of the largest RISE with

SAP programs to date. We are excited to work with TCS on this one-of-a-kind comprehensive transformation on such an accelerated basis. It took the incredible courage, collaboration, and persistence of a truly strategic partner. - Henk S. de Jong TCS lays foundation for Versuni to become a digital-first, insights-led company TCS helps Zurich insurance Germany digitally transform its life insurance business TCS and Proximus celebrate 20-year partnership; to focus on building a future-proof gigabit network in Belgium TCS' integrated consulting framework for perpetual innovation & growth Learn how we can help fast-track business innovation.
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Your finance strategy for growth and transformation

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transformation, you need a finance and shared services organization that's purpose-driven, value-focused, and agile. Align vision with performance Develop a next-generation operating model Identify digital opportunities Demonstrate data-driven value We help design and enable next-generation finance operating models and global business services delivery. Our areas of expertise include: An image that shows TCS finance and shared service offerings. The image has two distinct blocks juxtaposed to each other. The left block shows the full scope of a CFO operations. There are eight distinct process areas with individual scopes. The process areas are: 1) Finance IT includes cloud ERP, EPM, RPA, Edge Solution 2) Finance Strategy includes strategy, organizational design, and change 3) Operational Finance includes R2R, O2C, and P2P 4) Process efficiency, or FP&A includes planning, forecasting and budgeting, and performance management 5) Finance automation and AI encompasses. RPA, cognitive, and data solutions 6) Shared services encompasses target operating model design 7) Specialized Finance includes tax, treasury, and cash management. To the right of this object are a list of business outcomes in six bubbles. These bubbles are accounting close acceleration, reduce revenue leakage, SG&A cost reduction, M&A benefit realization, streaming finance operations, modernizing planning and forecasting, optimizing working capital, and finally Building a single source of truth. Why Finance Transformation Starts with Chart of Accounts How to Future-proof Financial Planning and Analysis How to Manage Margins Better with Strategic Cost-cutting Rethink budgeting with a digital-first mindset Automation in Finance: How CFOs Can Navigate Pandemic's Economic Storm TCS 2021 Global Financial Leadership Study TCS Finance transformation services drive high-quality outcomes for your investment dollars. CFOs who drive their companies' digital agenda stand out in three ways. They are involved in developing next-generation business models; they embed finance professionals in key business functions; and they ensure innovation gets sufficient funding. Vikas Gopal Looking to turn purpose into action? Theme Font size Line height =====================

TCS M&A Services

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innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Accelerate deal value realization You have these already downloaded We have sent you a copy of the report to your email again. TCS offers a full suite of mergers and acquisitions (M&A) services to support companies' transaction journey from strategy to execution, leveraging our domain and industry contextual knowledge. Our M&A services are designed to seamlessly support corporates and private equity firms from planning through execution and operation. Digital-first playbooks Ecosystem-enabled interoperability Global presence and delivery Purpose-led right-sizing Buy-side and sell-side diligence Target operating model and organizational design Integration and divestiture readiness and execution Transaction value creation Management of transition service agreements Deal exit planning Post-merger integration planning and execution M&A strategy and services in a box faster executions, including closing of books lower costs reduction in the total cost of ownership lower TSA management costs Realize meaningful and lasting impact with our M&A strategy and services. Transform operating models with the TCS Business 4.0 framework. Simplify IT landscapes with smart templates and pre-configured solutions. Minimize disruption with end-to-end execution orchestration. Reduce execution risks by using TCS simulations. Customize your approach using tools that cover nearly every industry, region, and size. Shift CapEx to OpEx with subscription-based pricing. In today's era of efficient business platforms and ecosystems, cost synergies can be achieved, but it should be more about acquiring new capabilities to fuel growth. Praveen Bhasin How to manage cybersecurity cloud across the M&A deal lifecycle How change management can maximize value in MA&D Five Ways to Manage and Achieve Synergy Targets in M&A Six principles to unlock value at a NewCo How AI will guide future M&A deals Cyber security diligence and planning vital to M&A success Looking to turn purpose into action? Theme Font size Line height =====================

Transform your supply 'chain' into an ecosystem 'network'

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Take charge of your risk and cyber strategy

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Prepare for tomorrow's challenges. Improve operational resiliency. Assure stakeholders. Comply with regulations. Cybersecurity has morphed from being a back-end priority to becoming a C-suite agenda. TCS takes a far-sighted, strategic approach to securing your enterprise rather than focusing on point solutions. Margareta Petrovic How to manage cybersecurity cloud across the M&A deal lifecycle Step up cyber defense with TCS ransomware control matrix Ransomware protection: Organizations' cyber defense against malware Cyber security in education: How a robust IAM program can help Building cyber resilience with a zero-trust approach Looking to turn purpose into action? Theme Font size Line height =====================

Your purpose, your cloud strategy and transformation

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best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. We believe that the future of enterprise is in the cloud. We can help you respond rapidly, optimize cloud spend, and monitor value realization, while orchestrating a sustainable ecosystem and accelerating profitable, purpose-driven growth. Build your future with TCS cloud strategy and transformation services. Plan and build a modern business platform enabled by cloud and new technology. Increase agility to adapt, evolve, and respond to threats and opportunities. Generate revenue from new digital and data solutions. Improve net promoter score via mass personalization. Drive exponential revenue growth via sustainable business models. Create seamless integration across the business ecosystem. Transform talent to empower relentless innovation. Multi-cloud transformation Digital core optimization Business model innovation Ecosystems integration Our cloud strategy and transformation consultants help you find your future faster by leveraging both structured and one-of-a-kind services. 01. Digital transformation Digital maturity assessment Business operating model—digital reimagination Industry cloud Digital integration UX personalization 02. Multi-cloud transformation Cloud maturity and adoption assessment Cloud platform engineering Legacy mainframe modernization Cloud business case modeler FinOps Cloud operating model Cloud design authority and Devops 03. Data analytics Data strategy assessment Data governance and implementation Data modernization and analytics 04. Transformation management office   The future belongs to businesses that embrace digital and cloud transformation. Accelerating the journey requires a trusted partner that can pave the way. Let's build your future together. Parthiv Shah TCS Aviana™ Helps United Airlines Get Off to a Flying Start Cardinal Health stands steady on COVID-19 battlefront Cloud migration strategy: How Foxtel transformed its digital landscape TCS' application management services helps BT improve CX No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height
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Strategy and transformation advisory services for CIOs

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Newsroom TCS works hand in hand with world-leading investors. TCS helps Zebra Tech with IT agile transformation Zurich Insurance Germany goes digital South32 enhances its operating model for agility Building a future-proof gigabit network in Belgium In focus Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. We help CIOs be part of the business growth and transformation agenda by providing a value-led, strategic approach to IT investments. From vision and roadmaps to IT governance and architecture, our advisory services help CIOs deliver enterprise agility and sustainability. Align IT with business goals Improve ROI and agility Strengthen enterprise architecture Drive sustainability We enable CIOs to play a central role in driving the success of their businesses, through technology-enabled services that take care of people, prosperity, and the planet.   IT strategy and governance IT operating model transformation IT financial and performance management Enterprise architecture Enterprise agility Sustainability Transform your IT organization with TCS CIO advisory services. Purpose-driven: Improved IT-business engagement, alignment and partnership to build a future-ready organization Adaptable: Increased agility to respond to changing customer needs and market conditions, by delivering innovative solutions and world-class customer experiences Resilient: Improved resilience to disruptions in market conditions, including macro-economic and geopolitical events Sustainable: Increased support for the achievement of the enterprise's sustainability goals IT is a strategic differentiator for business growth and transformation. CIOs continuously need to ensure that their organizations and IT ecosystems are fit for purpose and fit for the future. Richard August Agile way of working – Aiding enterprise-level strategic initiatives DSI report on digital sustainability and its importance TCS helps Exim Bank design coherent target IT landscape and reduce risks Embarking on digital transformation journey for business agility Want to learn how we help CIOs like you transform their organizations? Theme Font size Line height
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Elevate the customer experience so your business can thrive

The power of customer experience Our approach Our capabilities Belief in Action Benefits In the news Transformation starts here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. How digital factory is helping Takeda deliver business outcomes TCS helps Bovemji realize its digital strategy and drive growth Make CX the X factor in your growth story TCS assists Vodafone Hutchison Australia in their sales transformation Transforming customer experience with AI Building world class CX for an airline TCS Lays Foundation for Versuni How EDF Energy shored up its capabilities Insights Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Create vibrant customer relationships by optimizing every touchpoint with insights that deliver differentiated experiences. With our CX expertise, you can use technology across every channel to unlock growth, drive profitability, and build loyalty with current customers and new ones. Strategy and experience design Personalized commerce and content Orchestration of marketing, sales, and service Insights-driven TCS helps organizations understand, deepen, and nurture customer relationships. Our CX transformation capabilities include: Elevate your CX game to gain a competitive edge. Drive new revenue streams and growth with new services Increase loyalty and win new customers with exceptional experiences

Improve profitability through automated marketing, sales, and service capabilities Exceptional experiences are fundamental to brand loyalty and business success. Understanding the customer and engaging in just the right way is essential to building lasting relationships. Jim Wheless Contact center of the future: Balancing chatbots and humans Customer service and continuous improvement processes benefits | TCS How digital workplaces can improve business results Enhancing customer experience and giving brands a human face with AI The perils of over-personalization Align and serve your customers with world-class customer experience capabilities. Theme Font size Line height =====================

Stay competitive through next-gen enterprise transformation

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company announcements. You have these already downloaded We have sent you a copy of the report to your email again. To become future-ready, organizations must innovate, map performance against industry benchmarks, excel at change management, and build operations based on enterprise intelligence, automation, and AI. TCS consultants can offer advice every step of the way along the transformation journey. Innovation-led Value-focused Change management at scale Continuous transformation From ideation to execution, we take a holistic, measurable approach to innovate existing and new processes, enhance user experience—and drive continuous innovation and growth. Our capabilities are underpinned by TCS Enterprise Navigator™, a framework that offers: We target opportunities for innovation and process improvement with our strategic insights and value realization toolkit. Our bottom-up and outside-in analyses identify opportunities to: Improve top-line growth and profits Improve customer engagement and loyalty by focusing on the customer experience Respond quickly to changes in the business environment with increased alignment between business and IT   Transformation is not a one-and-done event. Our consultants bring the knowledge and experience to drive continuous business transformation. Barton Neal TCS' integrated consulting framework for perpetual innovation & growth TCS Enterprise Navigator to accelerate digital transformation journey TCS Crystallus™ on Oracle Cloud TCS Crystallus™ on SAP Learn how we can help you transform to a next-generation enterprise. Theme Font size Line height =====================

Maximize value from your innovation initiatives

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we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Most companies are investing in innovation to get an edge but ensuring innovation efforts drive business value is not always easy. We specialize in value-based innovation initiatives. Our advisory experts can help you choose the right innovation initiative and maximize impact for sustainable business growth. Tailored innovation strategy Human-centric design Agile methodology Collaborative partnerships Innovation isn't an option anymore; it's the lifeline that propels businesses forward. Stagnation can mean regression. Matt Theall Drive business value with our innovation consultants and our proven innovation capabilities. Realize sustainable growth with impactful innovation. Reimagining Scaled Innovation to Rebuild Organizations Making sense of disruptive innovations and technologies Creating a living innovation portfolio GE HealthCare Expands Partnership with TCS to Transform IT Operating Model and Accelerate Technological Innovation Theme Font size Line height =====================

Sustainable futures are built using an ecosystem approach

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our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Services / Sustainability Services You have these already downloaded We have sent you a copy of the report to your email again. Sustainability is a collective goal requiring us all to work together. To succeed, businesses need to shift from mitigation to regeneration, from a reactive mindset of 'doing less harm' to a proactive one of 'doing more good'. The way forward is to use the power of technology and innovation to pioneer new, sustainable opportunities and take an ecosystem-led approach to build greater futures. By taking an ecosystem-led approach and building sustainable ecosystems (enterprise, value chain, cross-industry, and cross-sector), enterprises can build sustainable businesses, create sustainable value chains, drive sustainable living, and nurture regenerative economies. The path to sustainability: With an ecosystem approach, enterprises can drive sustainable businesses and value chains, sustainable living, and regenerative economies. Managing scarce resources Meeting investor demands Adopting sustainable business models Improving compliance on sustainability laws

TCS Clever Energy™ TCS Intelligent Power Plant TCS DigiFleet™ TCS Envirozone™ TCS Intelligent Urban Exchange™ Sustainable by Design Four horizons for purposeful transformation Embracing regenerative economics for a sustainable future Win big on your sustainability KPIs with data and analytics Cognitive energy operations for next-gen sustainability ENGIE transitions to carbon neutrality Driving sustainability with Damen Shipyards AEMO transforms the energy market in Australia Achieving net zero emission with Clever Energy™ Ready to begin your journey toward a better future? Theme Font size Line height ======================

Five sporty lessons for sustainable business strategy

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parallels Using marginal gains to drive success Engaging ecosystems The importance of evolving our definitions of success Related reading TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Sapthagiri Chapalapalli Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Sapthagiri Chapalapalli Head, TCS Europe You have these already downloaded We have sent you a copy of the report to your email again. We can't tackle the biggest problems faced by business and society if we are not motivated, passionate, and driven to achieve excellence. The same is true in sports. Resilience and determination are key to this.
Take British diver Tom Daley, who competed at his first Olympics in 2008, aged only 14. It was only in his fourth Olympic Games, in Tokyo in 2020, that Daley won his first gold medal, thanks to his drive and ambition to succeed. Getting to the top in your sport is often a year-long marathon rather than a sprint. The same applies to our journey toward sustainable business practices.   Sports people are among the best examples of the 'growth mindset'. Carol S. Dweck of Stanford University, who coined the term, points to how basketballer Michael Jordan, athlete Jackie Joyner-Kersee and golfer Tiger Woods constantly stretched themselves to evolve, better themselves and grow. Believing in yourself and knowing you can achieve your goals will boost your willingness to train and improve performance and increase growth potential. In business, similarly, we cannot rest on our laurels. As the following examples show, environmental business strategies are one area where this is most pressing right now. At the Dutch Open golf course, Bernardus used birdhouses to attract local birds to provide natural pest control instead of using chemicals to fight off pests. At Jaguar TCS racing, innovations from the race circuit regularly make their way into road cars,

benefitting sustainable urban mobility. In sports as well as in business, innovation is often incremental. Sir Dave Brailsford, the former Performance Director of British Cycling, introduced the idea that making a 1% improvement in several small areas could lead to much larger cumulative effects.   In sports as well as in business, innovation is often incremental. Sir Dave Brailsford, the former performance director of British Cycling, introduced the idea that making a 1% improvement in several small areas could lead to much larger cumulative effects. Dedication to "sweating the small stuff", you might say, led to 16 gold medals in two Olympics and seven Tour de France wins in eight years. Businesses can apply the same lesson regarding sustainable business strategies: small changes add up. We increasingly see a departure from the traditional, linear "design-build-test" project lifecycle, where 'heavy lifting' is the norm, to an incremental and highly collaborative process that evolves over time.   Takeda's Digital Innovation Factory is an excellent example of that. TCS worked with the Japanese pharmaceutical company to create a digital innovation hub that works with the entire organisation. Each project is broken down into small, iterative steps based on a standardised framework and processes. Early prototyping ensures that future end users get to trial and shape products from their inception, ensuring that their needs drive development.   Another meaningful learning is that athletes, even if they ostensibly compete alone, never work in isolation. Take the Tour de France. Each team has individual riders battling their way to Paris. But they all play specific roles — the lead rider, the sprinter, the time trial expert, the 'domestique' who backs up the lead rider. Together with a supporting team of coaches, physiotherapists, mechanics and even cooks, they form a robust and inter-reliant ecosystem. As businesses reach for their sustainability targets, the same applies. No single company has all the answers; we must engage ecosystems to work together. TCS has long heralded collaborative working as a great source of innovation, and nowhere is this more obvious than our global Innovation Hub network, Pace Port™. Pace Port™ unifies the best of TCS' innovation with ecosystem capabilities, helping to deliver successful outcomes through collaborative research, experimentation and continuous learning alongside clients, partners, academia, and analysts.   By bringing the best practices and innovations together at intersections around the globe, our businesses and clients get the collaborative tools they need to set themselves up for evolution and innovative growth. Much like the Tour de France team members, no man is an island, and no business is self-sufficient. We all flourish and succeed through partnership and synergy. There is no one winner when it comes to sustainability; therefore, collaboration is vital for businesses to achieve their sustainability goals.   The best motivation, supporting team and mindset will achieve nothing without a structured approach. It involves setting short-term and long-term goals and planning the entire journey in achievable steps. As the athlete progresses, adjustments are also vital – adapting training methods, diets and even the targets themselves. The same applies in business. Target setting and strategies must evolve to ensure we are always ahead of the game. But we must also adapt to the circumstances. Sustainable business strategies mean developing our transformation goals with the realities of climate change and the technologies available to fight it. Like sports, sustainability is more than a game of 90 minutes, a 21-stage race or 18 holes. We're in it for the long haul. The Rise of Sustainable and Responsible Supply Chains How Digital

Twins Can Help Companies Boost Sustainability Sustainable Business Transformation: Building a Better World Powering Up Responsibly: The Sustainable Growth of Green Data Centers Theme Font size Line height ======================

Power sustainable ecommerce with AI-driven customer journey orchestrations

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quality product alone is no longer enough to win the loyalty of shoppers making purchases online. A robust modelling and AI-driven prediction of customer behavior with ecommerce solutions can make shoppers aware of how they can be a part of the overall eco-friendly and sustainability initiatives. The key performance indicators (KPIs) that an effective sustainability-focused journey orchestration should track include: Green commerce with personalized journey orchestration to drive sustainability practices can take numerous forms based on the attributes of shoppers and retailers: The seamless and personalized customer journey orchestration to promote sustainability can be built using a layered approach by leveraging a comprehensive set of static and derived attributes of retailers and shoppers (Figure 2). The growing popularity of online shopping has raised environmental concerns. But sustainable journey orchestrations done in an intelligent way can help online shopping become greener. These journeys can be extended to multiple retailers' context to make drastic difference to the way online shopping is done online and make it more sustainable. The Rise of Sustainable and Responsible Supply Chains How Digital Twins Can Help Companies Boost Sustainability Sustainable Business Transformation: Building a Better World Powering Up Responsibly: The Sustainable Growth of Green Data Centers Ready to begin your journey toward a better future? Theme Font size Line height =====================

Embracing regenerative economics for a sustainable future

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countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. David Kish Ecosystem Advisor Danielle Stanko Former Business Analyst Preeti Gandhi Head - Sustainability Marketing, TCS You have these already downloaded We have sent you a copy of the report to your email again.   From doing less harm to our environments to repairing our relationships with each other, the Earth's life-supporting systems, and technology. To achieve a stable world, we need an entirely new paradigm for the way we think about social and economic development—one that takes a whole systems perspective on relationships in a complex and interdependent world. We need an approach that balances our relationships to each other, the Earth's life-supporting systems, and the technology that underpins our lives. We must go beyond sustainable development—doing less harm to our environments—and start repairing these relationships so that everyone now and in the future can thrive. We need new systems and models that generate many types of wealth and create collective longevity. Regenerative economics is a way of thinking oriented around cultivating and revitalizing wellbeing at all scales, from individuals to landscapes.   The Rise of Sustainable and Responsible Supply Chains How Digital Twins Can Help Companies Boost Sustainability Sustainable Business Transformation: Building a Better World Powering Up Responsibly: The Sustainable Growth of Green Data Centers Ready to begin your journey toward a better future? =====================

Creating the sustainable organization

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tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Four horizons for purposeful transformation Preeti Gandhi Head - Sustainability Marketing, TCS You have these already downloaded We have sent you a copy of the report to your email again. No single organization can create a sustainable future, so an ecosystem approach must be adopted. At TCS, we have always believed that businesses exist to serve communities. That belief has guided our commitment to create a positive impact on the world and respond to the changing needs of the communities we serve. Today, the world faces many new challenges that will shape the way we live, but none are mounting as quickly as those related to sustainable development. So far, the global approach to sustainability has largely been about damage control, with businesses left to develop their own approaches. We see the need to approach sustainability as a collective goal based on shared knowledge—no single organization can create a sustainable future so an ecosystem approach must be adopted. This goal requires moving from mitigation to regeneration, from a reactive mindset of "doing less" harm" to a proactive mindset of "doing more good". By doing so, there will be positive outcomes for businesses, their employees and customers, and the planet in general. To learn about the four horizons for purposeful transformation, download the PDF. The Rise of Sustainable and Responsible Supply Chains How Digital Twins Can Help Companies Boost Sustainability Sustainable Business Transformation: Building a Better World Powering Up Responsibly: The Sustainable Growth of Green Data Centers Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

Go Green IT: Powering Net Zero commitments for businesses

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sustainability-journey ----- Industry Ecosystem-led Approach to Power Your Sustainability Strategy Highlights In this article The digital imperative Sustainability push Green IT Framework Areas of impact Green IT maturity steps Conclusion About the authors Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Anand Sampathraman Pallavi Atre Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Anand Sampathraman Director Sustainability & Industry 4.0, Asia Pacific Pallavi Atre Sustainability Consultant, TCS Asia Pacific You have these already downloaded We have sent you a copy of the report to your email again. The use of digital technology permeates most aspects of business and domestic life today. The number of active web users globally is over three billion, close to half the world's population. Two million smartphones are sold around the world every day. Digital technologies have changed how we communicate and find entertainment through streaming services and digital books. Our life expectancies have increased due to sophisticated technologies such as medical alert systems. We now pay e-bills, transfer money through e-wallets, shop using e-commerce apps, commute using mobile apps, and order using apps. The customer drives digital transformation. Therefore, for B2C businesses, increasing digital maturity to meet the needs of consumers is paramount because they can instantly vote with their cyber choices. The B2B landscape is also undergoing a massive transformation. Global spending on digital transformation will rise by around $6.8 trillion by 2023. More than 250 million new applications or services are set to enter the digital economy by 2024. Sustainability is now a strategic priority for most businesses, as is the idea that business resilience is fundamentally

interlinked with the planet's future and its people. Enterprises are responding to pressure from multiple stakeholders because customers want to buy from sustainable businesses. Investors are demanding greater transparency. Governments and regulators have developed corporate disclosure requirements for sustainability, including climate goals, to limit global warming to less than 1.5 degrees C. No wonder enterprises are preparing for the opportunities and risks that low-carbon business entails and are focusing on achieving net-zero commitments by 2050 or earlier. Digital technology can enable enterprises, cities, and nations to meet their sustainability goals faster. A recent survey found that 98% of respondents believe that the scale of use of digital resources, systems, and platforms to address sustainability will remain the same or increase in the next three years. Applications enterprises can use to achieve their sustainability goals: ·   Digitizing operations ·   Innovative technologies like blockchain, cloud, AI, and advanced analytics ·   Data sharing with partner ecosystems Enterprises can use digital technology to speed up their progress toward carbon emission reductions and achieve net-zero targets. In a recent study of APAC enterprises, about 87% of the respondents agreed or strongly agreed that digital sustainability is a central value of their organization and that it can deliver a competitive advantage. However, estimates show that IT operations contribute 5%-9% of global electricity consumption, with demand estimated to increase to 20% by 2030. The IT sector's global greenhouse gas emissions share is between 1.8% and 2.8%. It could go as high as 3.9% if the whole supply chain and lifecycles of IT and IT-related products are accounted for. IT has become a material issue for an enterprise's carbon emissions. It needs active consideration in sustainability plans to reduce the company's footprint. Green IT is an umbrella term for ensuring environmentally and socially sound information technology systems, applications, and practices. It aims to minimize the negative impact of IT operations on the environment and society by designing, manufacturing, operating, and disposing of computers and computer-related products in an environmentally friendly manner. The concept of green IT emerged in 1992, when the US Environmental Protection Agency launched Energy Star. This voluntary labelling program helps organizations save money and reduce greenhouse gas emissions by identifying products that offer superior energy efficiency. The Green IT framework considers emissions from the direct impacts of digital technology, the enabling effects of applications, and digital workplace capabilities. Among many other emerging associated levers, the systemic impact of behavioral change associated with digital technology is also taken into account. Digital enablement: Digitalization for real-time monitoring using existing data sources or additional IoT sensors helps provide better insights. Operational excellence through digital technologies can catalyze emissions reductions across the three scopes (Scopes 1, 2, and 3) and reduce environmental impacts. Measuring, Reporting, and Verification (MRV) of emissions reductions across the value chain can be made more efficient through digital processes. Green data centers: A life cycle approach — from procurement through operations to end-of-life — is required. Optimizing the two critical metrics of operations, namely power usage efficiency (PUE) and data center infrastructure efficiency (DCiE), defines the level of efficiency. Other impactful areas are: Technology adoption and the practises followed significantly affect data centres' operational efficiency. Virtualization and

consolidation of server rooms, servers, network links, and other infrastructure provide opportunities to improve efficiency. Green software: Tangible (coding efforts to go green and more) and intangible (user experience, security, performance, and more) opportunities exist to adopt a green approach to software development and management. Embedding energy efficiency measures in the software development lifecycle, such as efficient design, adaptive energy-wise applications, no-code-low-code options, containerization for infrastructure-agnostic deployment, and adopting location-independent agile methodologies with shorter meeting durations, reduces the carbon footprint of the SDLC process. Assessment using tools like code analyzers helps identify energy leaks and profile them. Optimizing procurement: Procurement practises should actively consider end-user devices, networking components, and the carbon emissions associated with manufacturing these devices and components. E-waste recycling and the use of refurbished hardware made from recycled materials reduce carbon emissions and the environmental impact. Green workplace: A workplace that is environmentally sensitive, resource-efficient, and socially responsible benefits an organization by reducing energy consumption and unused hardware, enhancing brand reputation, and increasing employee satisfaction. Green workplaces encourage behaviors such as reducing and avoiding unnecessary video streaming and making more conscious choices about turning off plugged-in devices that are not in use. Going paperless by expanding the use of collaborative tools, using, and regularly purging unnecessary data on a green cloud service, deleting junk or unwanted mail, and dimming monitors, are some of the other measures. Accessibility and inclusivity: Enterprises should take responsibility for creating accessible and inclusive digital technology through the ways they design, use, maintain digital assets, and measure effectiveness. A green IT strategy should consider developing technologies that are accessible to everyone, including those with different physical and cognitive abilities. Other steps include diversifying the workforce and ensuring the representation of digital minorities to create inclusive products intentionally. From massive data centers committing to reduce energy consumption to individuals instilling behavioral changes to turning the power off the devices that are not in use, green IT is multi-faceted and involves multiple decisions at every level. Thus, sustainability must be ingrained in a company's work culture. The benefits of adopting a robust green IT plan, when aligned with business strategy, are a critical enabler for a company's net-zero plan. Digital transformation can be a competitive advantage. However, the impact of digital on emissions and broader environmental and social areas needs active consideration in a company's sustainability journey to minimize the negative impact. There are continuous evolving processes, and an enterprise needs to know the technological opportunities that have business benefits and enhance value. Digital technologies can enable a company's decarbonization strategy and accelerate its net-zero ambitions. Not surprisingly, a recent study shows that about 87% of respondents are looking for new strategic partners for digital sustainability and to collaborate for win-win outcomes. The Rise of Sustainable and Responsible Supply Chains How Digital Twins Can Help Companies Boost Sustainability Sustainable Business Transformation: Building a Better World Powering Up Responsibly: The Sustainable Growth of Green Data Centers Ready to move

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A scalable approach to product life-cycle assessment

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conventional bottom up (BU) approach to LCA is complex, time-consuming, costly, and unable to provide the insights businesses need for sustainability. Applying "activity-based footprinting", modelled on Activity Based Costing (ABC), is one way of addressing the first barrier to making LCA scalable and open automation possibilities to turn it into a sustainability management tool for the enterprise. One of the biggest challenges faced by enterprises today is to build a successful business with minimal environmental impact. It's no wonder then that solutions that decouple business value from resource consumption, and enable sustainable production and consumption, are sought after. To create businesses and products that are kinder to the planet, a better understanding of the environmental impacts of product life cycles and how these are affected by choices made by producers and consumers is essential. Innovations in business models and product design can both enable and inspire more sustainable lifestyles. So, what's the way forward? Taking a holistic view and identifying the "hot spots" within the value chain where interventions have the greatest potential to reduce the environmental impact of the whole system is the first step. This holistic view also ensures that we avoid the risk of simply shifting impacts from one stage of the value chain to another. Such an approach for assessing the environmental impacts associated with all the stages of the life cycle of a product, process, or service is known as life-cycle assessment (LCA). First carried out in the 1960s, LCAs have evolved since then with standards and taxonomies driving them. But they remain largely exploratory and research-based rather than a means of management monitoring and insight. We now know the limitations of LCA as an approach to managing enterprise sustainability. Most companies realize the need to adopt more sustainable business models that are not dependent on manual processes or subject matter experts using stand-alone tools and have committed to do so. However, they find that they lack the tools and insights needed to deliver against those commitments.   The conventional approach to LCA solutions is a form of 'bottom up' (BU) data analysis. It uses data to piece together factors that result in a specific outcome, leading to insights into the complex systems further up the information ladder. When using BU analysis for LCA, we start with a single, defined product that is the subject of the study. The materials and processes used to make it are systematically mapped back through the value chain that resulted in that product so that the environmental impacts of those inputs can be quantified. This is a complex task, requiring specialist knowledge and software tools. Inevitably, it is time-consuming and costly. It would need to be applied to every product a company makes and would have to be repeated if any changes are made to those products. This makes BU inadequate for monitoring or measuring the progress on sustainability across an organization as this would require insights across all products and processes, repeatedly. Hence a BU approach to LCA falls short of giving businesses the insights needed to drive sustainability. With 'activity-based footprinting', we can make LCA scalable and work as a sustainability management tool. If we are to measure and manage the environmental consequences of decisions made on material sourcing, manufacturing processes, product design, and routes to market, an LCA on all products is essential as part of the same regular management reporting routines used to track every other KPI in the organization. To deliver on their net-zero commitments and transition to the circular economy, companies need to have the capability to track those KPIs and

make informed decisions. At TCS, we take our inspiration from how successful companies manage other complex changes. Environmental impacts pass through value chains in a similar way to financial costs. Just like there is a measurable cost associated with all activities in a value chain whether it is producing, transporting, or processing materials, there is an environmental cost attributed to each of those activities. Like financial costs, environmental impacts can be reduced by optimizing efficiencies—finding ways of 'doing more, with less'. Importantly, as with cost, all environmental impacts are passed down the value chain, becoming embodied in, and accountable for, in the final product. This analogy between financial cost and environmental impact shows us how we can make LCA into a management tool. In management accounting, activity-based costing (ABC) is a method that identifies activities in a company and assigns the cost of each activity to all products and services according to the actual consumption by each. This makes ABC an example of 'top down' (TD) data analysis, in which the overarching system of data collection and analysis is captured, allowing detailed models of subsystems to be refined as appropriate. BU methods are the best approach when cause and effect need to be explored and when problems need to be defined; TD approaches are more effective when business problems are known, and the need is to understand and manage them systemically. Many leading companies use ABC to accurately measure all the elements that define unit costs to a high degree of granularity, thereby facilitating strategic decisions such as pricing, outsourcing, identification, and measurement of process improvement initiatives. What if we use the same allocation methodology but use the environmental impact factors developed for LCA to measure those activities? In ABC, we might say that every kWh of electricity used in the production of that product costs $0.33 and indicate how energy prices contribute to the unit cost. It would be equally true to say that every kWh of electricity used in the production of the product produced 230g of carbon dioxide equivalent or CO2 e, and we would then understand how the carbon intensity of that energy supply contributes to the carbon footprint of each unit produced. An infographic depicting how life cycle assessment as a sustainability management tool can help organizations deliver on their net-zero commitments and transition to the circular economy. It depicts the unit cost of each product and the footprint of each product. Automation is key to breaking barrier to LCA scalability. By applying 'activity-based footprinting', modelled on ABC, we can address the first barrier to making LCA scalable. The entire production output of a manufacturing site can simultaneously be assessed, down to sub-assembly and part-level granularity. Automation around data management, workflows, and analytics can make the process repeatable and usable as a source of management analysis and insight. Primary data sets necessary for LCA sourced from existing ERP and other business systems can be repeatably aggregated by automated data acquisition and analytics capabilities, generating a series of dashboards providing actionable insights to functional management teams, highlighting the hot spots that need interventions. Purchasing teams can analyze suppliers according to their impact; designers can see how the choice of materials affects the environmental footprint of their innovations; and manufacturing managers can focus on efficiently reducing material and energy wastage. Essentially, the above scalable LCA approach opens up automation possibilities that effectively become a sustainability management tool for the enterprise. An

infographic depicting how the scalability of life cycle assessment opens up automation possibilities that effectively become a sustainability management tool for the enterprise. It depicts upstream impacts from materials and the supply chain; core impact from operations; and downstream impacts from product use and end of life. Win big on your sustainability KPIs with data and analytics TCS partners with AEMO to transform the energy TCS Sustainability Solutions on Microsoft Cloud Parcel consolidation: The answer to last-mile logistics woes Ready to move from enterprise to ecosystem? Theme Font size Line height =======================

How green data centers are powering sustainability goals

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reports, and company announcements. Michele Lemmens Head of Business Sustainability and CTO, TCS APAC M Priyadarsini Solutions and Delivery Head for TCS BFSI - Sustainable Banking, Finance, and Investments Lekha Menon Infrastructure Practice Lead - Cognitive Business Operations You have these already downloaded We have sent you a copy of the report to your email again. The digital age has created a massive demand for data storage and management. However, the growth of data centers in response to this demand is hurting the environment. According to the United Nations, the IT industry accounts for 2-3% of global emissions, which could rise to 14% by 2040. Many companies now recognize the role of IT in achieving their net zero goals, and CIOs are taking bold steps to improve the sustainability of their IT operations. Industries such as telecommunications, banking, finance, insurance, and media and entertainment, which rely heavily on infrastructure, are building green data centers (DCs). Scientists are researching ways to reduce the power needed for data centers—cooling alone can account for up to 40% of their energy usage. Green DCs are driven by several factors, including cutting costs, conserving water, and reducing emissions to achieve net zero goals. This paper provides practical guidance for companies transitioning to a green data center. The recommendations will help you streamline the implementation process for green IT, mitigate transition risks, and meet your company's sustainability targets. When creating a green DC, it is essential to consider the facility's design, energy source and usage, knowledge and measurement systems, key performance indicators (KPIs), asset lifecycle management, and water conservation. A company can implement several measures to achieve efficiency in the design of data centers. These include efficient uninterruptible power supply (UPS) systems, liquid cooling, advanced battery technology, SF6-free switchgear, and efficient space utilization. Additionally, the company can cut energy usage by assigning financial value to carbon emissions, procuring renewable energy, and utilizing market-based options for clean electricity. These measures can help improve the sustainability of data center operations and reduce their environmental impact. Integrated data center management (IDCM) systems can optimize power usage and track critical metrics. Comprehensive asset lifecycle management is crucial for reducing electronic waste and implementing circular practices. An organization can achieve water conservation through environmentally conscious sourcing and handling of water and exploring new technologies such as liquid immersion cooling, direct evaporative cooling, direct-to-chip cooling, and underwater data centers. A company can choose between owned, outsourced, or hybrid data centers for a green DC initiative. The company manages 'owned' data centers, while a third-party provider runs 'outsourced' data centers. Hybrid data centers combine aspects of both. Understanding the emission footprint and control management of these DCs is crucial to achieving sustainability objectives. In an owned DC, the company has more control over the operations, such as facilities management, non-IT energy tracking, exploring renewable energy resources, water and e-waste management, and vendor selection. However, this requires more investment because it is a dedicated setup. A company can measure scope 1 and 2 emissions by tracking direct emissions within its control, such as the combustion of fossil fuels for backup generators, heating systems, and the release of refrigerants used in cooling systems, as well as indirect purchased energy, such as emissions associated with the

generation of electricity consumed by the data center. On the other hand, outsourced DCs provide less control for organizations but give them the ability to contract and outline requirements as part of the procurement process. Co-location offers the leverage of specialized and shared infrastructure for energy efficiency, economies of scale, and environmental sustainability. For this, certifications such as LEED and ISO 14001 are required, which helps in ESG reporting. Organizations need to collect carbon footprint data from the outsourced DC provider to report on their organization's scope 3 emissions. In a hybrid DC model, an organization outsources non-critical business operations to the cloud, resulting in resource savings and a reduced energy footprint. The organization retains control over critical functions related to data security. The organization can decide what percentage of operations should be outsourced without affecting business operations. Through hybrid DCs, organizations have less control and higher reliance on public cloud service providers to report on e-waste management and disposal of hardware. Organizations must design a green DC strategy based on workloads as the most cost-efficient solution. Switching to clean energy: Green data centers use renewable energy sources, such as solar and wind power, to reduce dependence on fossil fuels. However, renewable energy's limited availability, cost, and reliability can make it challenging for data centers to transition. Integrating legacy systems: Retrofitting data centers to meet green standards can be challenging due to infrastructure limitations, such as outdated cooling systems and limited space. Older data centers use more power for cooling, which can result in excessive electricity consumption. One way to overcome this issue is by implementing DC scaling through a cloud hyperscale approach. This model enables adding or removing servers as per demand and can be combined with virtualization to lower power usage. From e-waste to circularity: Organizations with limited IT budgets often make incremental changes to their data center hardware, which can add complexities. However, the first step can be adopting a green procurement policy for new procurement, even though there may be a gap in active contracts execution of the policy adoption. End-of-life IT assets can be more actively assessed for recycling/reuse. Proactive data center infrastructure management can improve performance when equipment efficiency and design standards for operational efficiency are considered. A compliant green DC is essential to meeting sustainability goals. There are several methods for doing so, including established and emerging standards. One such standard is the ANSI/ASHRAE Standard 90.4-2019, which sets energy standards for data centers. Commonly used metrics for measuring sustainability include Power Usage Effectiveness (PUE), which calculates the ratio of total power consumption to IT equipment usage, and Carbon Usage Effectiveness (CUE), which measures the facility's carbon footprint as a percentage of its total energy consumption. Customers also track IT power consumption, rack utilization, and virtualization percentage. Newer metrics are under development to focus on green DC initiatives such as clean energy procurement, waste management, and recycling. Others include Renewable Energy Factor (REF), Electronics Disposal Efficiency, IT Equipment Energy, IT Equipment Utilization, Waste Heat Utilization, Waste Recycling Rate, and the Digital Sustainability Index. The Digital Sustainability Index evaluates multiple factors to give a complete sustainability rating. A company can choose between owned, outsourced, or hybrid data centers for a green DC

initiative. The company manages 'owned' data centers, while a third-party provider runs 'outsourced' data centers. Hybrid data centers combine aspects of both. Understanding the emission footprint and control management of these DCs is crucial to achieving sustainability objectives. Companies have begun communicating and disclosing sustainability information for their IT operations, although they are still in the early stages. There is a growing awareness and interest in this area. CIOs actively seek to understand their current state, including establishing baselines for data center, cloud, and workplace emissions and identifying the most relevant metrics to track. However, we have identified six typical challenges in this journey: TCS aims to lower our carbon footprint by 70% by 2025 and achieve net zero emissions by 2030. To reach these targets, we are adopting a greenhouse gas (GHG) management strategy focusing on green infrastructure, green IT, operational efficiencies powered by IT, and renewable energy. We monitor energy consumption through our Remote Online Monitoring Center. Through these efforts, we have reduced our GHG emissions by around 3,200 tCO2e in FY 2022 and decreased our average data center PUE from 1.85 in FY'16 to 1.66 in FY'22. In a data-driven world, green data centers will shape a new sustainable future by reducing energy usage and carbon footprint while saving costs and improving performance. Let's take that step together and protect our planet to unlock a better future. 4 Strategies to Build Sustainable and Green Data Centers Data centre temperature monitoring: A stitch in time Cybersecurity mesh model: Enabling enhanced security controls Cybersecurity mesh model: Enabling enhanced security controls Ready to move from enterprise to ecosystem? Theme Font size Line height =====================

The dawn of a sustainable and responsible supply chain

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create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Jan Steenberg Partner and Head, Supply Chain Transformation Practice, TCS Europe and UK&I You have these already downloaded We have sent you a copy of the report to your email again. The global supply chain is at an inflection point, propelled by environmental regulations and a growing demand for achieving net zero by 2050. However, the most significant driver of this shift is actually changing consumer behavior. Today's consumers— millennials and Gen Z, in particular—are increasingly environmentally conscious and favor brands that prioritize sustainability. This shift in consumer behavior is not a passing trend but a clear indication of an emerging drive to achieve a sustainable economy. To remain competitive, supply chains must embrace technology and innovation, fostering greater transparency, traceability, and accountability toward reducing carbon emissions. The supply chain—especially in the manufacturing, logistics, and retail sectors—contributes significantly to global carbon emissions due to its extensive use of fossil fuels, energy-intensive processes, and transportation-related emissions. Achieving a sustainable and carbon-neutral future requires the involvement of all stakeholders, including businesses, governments, and consumers, whether by adopting cleaner technologies and processes, implementing policies that encourage sustainable practices, or making conscious choices as consumers. To decarbonize the supply chain, it is necessary to focus on three top priorities that require immediate action: improving resource or material efficiency, reducing waste, and building a circular business model. But this is only the first step toward the creation of a sustainable supply chain. Building the next-gen supply chain of the future goes beyond the traditional focus on cost and efficiency; it integrates environmental, social, and economic considerations into every decision-making process. These components contribute to environmental conservation and offer significant business benefits, including cost savings, risk mitigation, and enhanced brand reputation. Let us explore the building blocks in detail: Businesses can collaborate with suppliers, customers, and regulators to promote sustainability across the supply chain. This collaborative approach can create ethical and sustainable supply chains that benefit the environment and contribute to the company's bottom line. Finally, it is essential to view supply chains as ecosystems. This means recognizing the interconnectedness of all elements in the supply chain and understanding that changes in one area can impact others. This ecosystem perspective encourages holistic thinking and promotes sustainability across

the supply chain. Building responsible supply chains is a journey that involves strategic planning, operational efficiency, and continuous transformation. Each phase of this journey—from cultivating an understanding of the current operations to refining and expanding implemented strategies—plays a crucial role in shaping a sustainable supply chain. As businesses embark on this journey, they contribute to environmental conservation and enhance their operational efficiency, risk resilience, and brand reputation. Moreover, by viewing supply chains as ecosystems, businesses can foster a holistic understanding of the impacts and dependencies within the supply chain, informing more sustainable decision-making. Ultimately, the road to sustainability is a shared journey, and every step taken towards building responsible supply chains brings us closer to a cleaner, greener, and inclusive future for all. Achieving circularity – Building sustainable supply chains Ecosystem-led Approach to Power Your Sustainability Strategy Supply Chain Transformation: Resilience & Agility to Combat Risks Building the neural future Ready to move from enterprise to ecosystem? Theme Font size Line height =====================

Welcome to TCS Summit Asia Pacific 2024

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/sustainability-services/solution/tcs-zero-carbon-platform ----- Day One: 18, November 2024 Growth & the adaptable enterprise Through the lens Gallery / Through the lens The perpetually adaptable enterprise 3.26pm-4.06pm AEDT Empowering the adaptable enterprise Pioneering the adaptable enterprise A visual journey Gallery / A visual journey Day Two: 19, November 2024 The future reimagined 10:06-10:21am AEDT Future proofing the adaptable enterprise 10:23-10:57am AEDT Engineering the adaptable enterprise 11:00-11:34am AEDT Powering the adaptable enterprise 11:37-12:11pm AEDT Digitally accelerating the adaptable enterprise 12:14-12:48pm AEDT Adapt & win in a competitive world 12:48-1:16pm AEDT Closing remarks 1:16-1:20pm AEDT Day 2 Recap Day 2: Unfolded Gallery / Day 2: Unfolded Follow us for the latest updates TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. LINKEDIN INSTAGRAM Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At

TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS Summit Asia Pacific 2024 You have these already downloaded We have sent you a copy of the report to your email again. Welcome to the TCS Summit Asia Pacific 2024 - The perpetually adaptable enterprise: Readiness in the era of AI and continuous change - coming live from the Taronga Institute of Science and Learning at the iconic Taronga Zoo in Sydney, Australia. Across the following two days, we'll delve into a dynamic agenda that focuses on perpetual adaptability as the key requirement for success in an era of rapid advancements. Join us to explore the strategies businesses can employ to remain resilient and agile amid ongoing transformation. 2:30pm AEDT TCS Asia Pacific Summit 2024 commenced with an engaging welcome from co-hosts Adam Spencer and Amy Duggan. They set the stage by highlighting the critical role of adaptability in an environment shaped by economic shifts, geopolitical developments, evolving legislation, accelerated technology innovations, and the urgent need for businesses to be flexible to their core and perpetually ready to digitally transform. Adam and Amy also highlighted recent innovations from TCS including the GoZero Hub and AI WisdomNextTM, along with the conservation mission of Taronga Zoo – the site of this year's Summit. Opening session with Girish Ramachandran, President - Growth Markets, TCS Asia Pacific Following an Acknowledgement to Country led by Wiradjuri woman, TCS Sydney Marathon Indigenous Running Ambassador and Indigenous Marathon Foundation graduate, Hayley Pymont, TCS' President of Growth Markets, Girish Ramachandran, opened TCS Summit. A compelling fireside discussion with co-host Adam Spencer interrogated the concept of a perpetually adaptable enterprise and laid out the case for why it matters more in 2024 than ever before. Girish revealed TCS's vision for businesses that don't see readiness as a final destination, but rather as a state of constant evolution, powered by AI, quantum computing, cybersecurity, and digital sustainability. Net zero still a high priority While the possibilities for AI are exciting, "we also need to consider the environmental impact. Data centres used to power the AI revolution will soon make up six to eight percent of the world's carbon," he added. TCS' dedication to achieving net zero by 2045 and broader mission around sustainability was a key element of the discussion. Girish highlighted that hosting TCS Summit at Taronga Zoo will see every dollar spent put towards its critical work around conservation and biodiversity. He also noted that the Summit is a carbon-neutral event thanks to the TCS Zero Carbon Platform, which is designed to help organisations monitor and manage their carbon footprints through AI and data analytics—an essential tool as sustainability remains a top business priority and a core

theme of the event's agenda. The regional and geopolitical perspective The regional perspective on the issues of the moment was a key topic, with Girish sharing his thoughts some of the greatest challenges for business, including a rapidly changing geopolitical landscape, a shift towards nationalism, the challenges of the energy transition and a growing middle class. The discussion concluded by reinforcing TCS's commitment to helping businesses prepare for a future defined by accelerated change, through a blend of digital transformation and collaborative partnerships. CEO Keynote Speech A warm welcome was extended by TCS Chief Executive Officer and Managing Director, K. Krithivasan (Krithi). Delving into the rapid changes in AI since the last summit, Krithi stressed the importance of adapting fast for enterprises to succeed. To thrive in the new era of AI, it will be imperative for enterprises to achieve three things: the right technology foundation, a design for change and continuous talent transformation. Krithi highlighted the success of clients using AI-driven solutions such as TCS AI WisdomNext, which has helped customers optimise their decision making around AI tools. By implementing tools like these, enterprises can navigate the key challenges and opportunities of new technology and artificial intelligence. He also discussed how enterprises such as Rolls Royce, AEMO and Endeavour Energy have relied on TCS to achieve their net zero goals by using AI technology and automations to improve compliance and accelerate transitions. Preparing the workforce and future-proofing supply chains Lastly, the discussion turned to creating responsive and resilient supply chains that can handle impending disruptions and volatility. By building a fully integrated digital supply chain allowing real-time visibility and dynamic route changes, TCS has been able to help 220,000 drivers for a major retailer improve their inbound delivery process across Australia and New Zealand. Speaking to the future of the workforce, Krithi emphasised the importance of ensuring teams in organisations are continuously transforming and adapting to leverage changing technologies like generative AI. It was essential, Krithi said, that organisations provide training and upskilling opportunities to leadership and the entire workforce to help them better understand and use generative AI. One key outcome of this was establishing Centres of Excellence to drive a culture of continuous learning and training within the organisation for AI adoption. Ultimately, the key takeaway was the importance of working with AI, rather than against it. By embracing it and adapting now, enterprises will reap far greater rewards in the long-term than if they resist the change in the coming years. 4:08-4:43pm AEDT Empowering the adaptable enterprise, explored the role of the board in championing an organisation's ability to thrive in a time of relentless change. Moderated by Haidi Stroud-Watts, Anchor of Bloomberg: The Asia Trade, the panel featured Michael Miller, Executive Chairman of News Corp Australasia, Song Hoi See, Founder and CEO of Plaza Premium Group, experienced Non-Executive Director, Anne Templeman-Jones, and Mel V. Velarde, Chairman of NOW Telecom. Championing change management in an era of disruption To set the scene for the discussion, Haidi asked each of the panellists to reflect on the rapid changes unfolding across economy, climate, and geopolitical tensions, and shed light on how boards in these industries are responding to these developments. In this context, Anne Templeman-Jones highlighted that amid rapid change, it is the responsibility of the board to navigate change management. "Certainly, the change that has to happen at the board level is a lot more education and

versatility", she added. AI governance and regulatory challenges The discussion then shifted to how AI is perceived and used in each of the panellist's industry, with Michael explaining how AI is used as a tool but not a replacement to traditional journalism, while Mel elaborated on the perceptions of AI among boards his industry. "We don't embrace chaos immediately", he explained, "but we want to build a flexible, resilient human organisation that can respond to constant disruption as a default – not as a surprise". Anne added her perspective that board leaders have an inherent responsibility for AI governance, segueing the discussion to the role of regulation and guardrails in managing the risks of emerging technologies. Michael spoke to the increasingly difficult barriers to entry in the media industry as a response to growing competition, and touched on how regulation is stepping in to address key competitive challenges such as the barriers to entry are becoming harder. "Boards are being re-weighted, and becoming increasingly hands on", he added. Managing technological risks and opportunities Mel emphasised the risks and opportunities of competition in the evolving technological landscape, explaining that "we belong to the largest interconnected machine that could commit crimes with the very same technology", and posed the question of the role in governance in protecting ourselves. "We need a trusted network alliance", he suggested, "so we can all work together and share information when there is an outbreak or breach to identify which technologies we can trust". But at the same time, he stressed that "if we don't watch out, every vertical from mining to airlines, could see their own technology be used to cause disruption, or even make them obsolete". All panellists underscored the need for boards to support agile decision-making, where governance should operate at the intersection of regulatory compliance and innovation. Balancing governance with innovation Song concluded with an observation about the importance of balancing investment and governance with a clear vision and unique value offering. "I see a lot of companies spending money on technology just for the sake of spending, without knowing the long-term objective. Longer term planning is playing a bigger role now. Tech gets you in the game but doesn't get you ahead of the game". He explained that the solution lies in businesses providing a point of differentiation and using technology to accelerate this unique market position. The session concluded by highlighting the need for boards to balance governance with innovation to effectively foster a culture of adaptability within organisations. 4:45-5:20pm AEDT The conversation around future-ready enterprises continued with Pioneering the adaptable enterprise, which gathered CEOs and leaders from some of Australia's top companies to discuss why embedding adaptability into organisations is essential for leaders navigating today's volatile business landscape. Also moderated by Haidi Stroud-Watts, Anchor of Bloomberg: The Asia Trade, the session featured insights from Melanie Evans, CEO of ING, Damien Nicks, CEO and MD of AGL, David Koczkar, CEO of Medibank Group, and Clive van Horen, Group CEO of Colonial First State. Panellists stressed the need for flexible leadership against the backdrop of dynamic change with factors like the cost-of-living, the energy transition and insufficient innovation in the health sector all cited as major barriers. Using technology to remove regulatory barriers The panel agreed that while technology is essential for agility, regulatory burdens must evolve to keep pace with innovation. Melanie suggested aligning policy decisions with the needs of everyday Australians,

emphasising that "data and tech will be at the heart of it," and stated that it is the responsibility of organisations to ensure customer privacy awareness. David argued that health regulations, now outdated, need a complete overhaul. "We need to move from a fee-for-service model to continuous care," he said, citing cases in Northern Europe, where up to 50 per cent of primary care interactions are virtual, freeing doctors for the most serious cases. Damian advocated for balanced system rebuilding in the energy sector, urging timely regulatory updates "to enable you to do what you need" and highlighted the importance of using customer and regulatory data to offer informed choices.   A values-driven approach will be key to attracting future talent The panel also considered adaptability as a key attractor for top talent, with participants sharing strategies for fostering cultures of agility that are vital for retaining competitive advantage. They collectively highlighted the need for organisations to become more human and values-driven to appeal to the next generation in the workforce. Melanie argued that there was a need to ''focus not just on physical environment but also the social environment'' and that businesses must become "more values driven and sustainability focused." Clive expanded on this argument at a macro-level, citing that globally a feeling of "cynicism, anti-establishment and distrust" means that business focus must be on purpose to enable talent retention. The session concluded with a final remark from Damian who suggested that it's important for businesses to build flexible technology stacks to meet diverse customer needs. The main takeaway from the discussion was that businesses across industries must embrace adaptability, technology and a customer centric approach to navigate the complex challenges and transitions they face. Day 1 Recap Here are the top takeaways from Day 1 of TCS Summit Asia Pacific 2024: Day two of TCS Summit Asia Pacific 2024 is set to deliver another day of insights focused on the future of business. Co-hosts Adam Spencer and Amy Duggan delivered a quick recap of day one, including the evening entertainment and close-up animal encounters, and introduced an impressive lineup of speakers and topics. They set the stage by highlighting the importance of resilience and adaptability in the challenging economic environment how we can use technology to address the energy transition and posed the ethical question of AI and its future. To kickstart the day, Frank Diana, Managing Partner and Principal Futurist at TCS offered his perspective on how we can leverage learnings of the past to reimagine the future together. With over 30 years of leadership experience, Frank tapped into his deep knowledge of business, societal, and economic evolution to share insights with the audience around how leaders can continue to evolve by reframing their vision of success into one that is centred on being adaptive.   What history can teach us about the future Frank revisited what he called the "greatest decade of invention" and highlighted examples of major inventions that profoundly shaped modern society between 1870 and 1970. He explained how each of these purpose technologies eventually scaled up to a point where they created "system level change" and noted that while it took the invention of electricity 40 years to reach this point, that AI could achieve this in a much shorter time frame. "By 2040, we could be witnessing system level change, which will massively impact society". Going beyond adaptability and resilience to fully thrive With AI primed to unlock productivity, and in turn, human prosperity, Frank calls leaders to fully leverage all that this technology has to offer – moving beyond adaptability and resilience to achieve a state of, what he

calls, "ART" (Adaptable, Resilient, Thriving). "Thriving becomes a bigger piece of this story" during times of uncertainty, he explained, and "those that really leverage invention to create applied impact will thrive". According to Frank, unlocking a state of 'ART' where we can collectively harness AI's full potential, is less about intelligence or literacy, but being able to learn, unlearn and relearn. Unlearning to making room for the knowledge that allows us to move forward To conclude, he urged the leaders of today to undertake a process of unlearning to rehearse and unlock the potential of the future. "Unlearning means letting go of some of the knowledge and experiences that don' serve us very well today", he explained, and to "make room for knowledge that allows us to move forward". Building on Frank Diana's thought-provoking keynote, Future proofing the adaptable enterprise shifted into a more practical lens, outlining the key strategies enterprises need to adopt to evolve into an adaptable enterprise. Moderated by Amy Duggan, top ASX CFOs Adam Campbell (Flight Centre) and Deepa Sita (Metcash), discussed strategies for building resilient and agile businesses in a changing landscape. "The destination can stay the same, the flexibility needs to be in how you get there,"' commented Adam. How to adapt to a changing market Adam drew from his 12-year tenure as CFO at Flight Centre Travel Group to share his thoughts on the consequences of implementing change without a clear view on ROI, especially in the volatile post-Covid travel industry. He emphasised balancing macroeconomic factors with future investment: "Post-COVID, things rebounded quickly – a lot of organisations simply cut costs, but that means that when things improve again you aren't ready for it. We need to invest heavily in customers, core infrastructure and people." Leveraging technology and AI Both panellists then dived into the applications of AI in their businesses. They argued it was important to consider sustainable and ethical AI and despite Frank Diana's modelling for the future, its limitations meant it should only be used to support the day-to-day of individuals. Deepa explained that the primary use of AI in her business was in analysing data to make more informed decisions but keeping a human in the loop alongside appropriate guardrails would be critical. Deepa commented, '"AI will be able to make recommendations but you will still need human in the seat." Adam agreed that AI would be "a tool, not the answer.'' What will the future CFO role look like? Ultimately, the panel concluded, enterprises need to be prepared to balance vigilance and perpetual curiosity when incorporating new and changing technologies. "The CFO role is morphing into one where you are driving the business forward and not just allocating cash to resources," Adam explained. He also encouraged CFOs to leverage this shift to help build future-fit, ethical and sustainable enterprises: "you've now got a really clear voice in being able to articulate what you think the best version of that company is." Deepa agreed and added her advice to leaders: "Don't leverage short term benefit for long term growth. You've got to make sure that you get the balance right" Adam left one final piece of advice for CFOs to be authentic – "authenticity in a CFO is one of the most important attributes you can have." Our next panel took a deep-dive into one of the biggest topics of the year – the role of the Chief AI Officer. Joined by some of the top leaders in the technology sector, Adam Spencer moderated an insightful discussion into how and why enterprises should cultivate collaborative ecosystems to harness the capabilities and deliver the potential value of AI technology. The panel featured Melissa Irwin, Chief Data, People & Sustainability Officer at

Endeavour Energy, Melanie Van De Merwe, Executive General Manager of IT & Digital at TPG Telecom, and Dr Harrick Vin, CTO at TCS.   Weighing in on the Chief AI Officer debate? At the heart of the discussion was dissecting the concept of the Chief AI Officer – a role that has become a buzzword in 2024. Melissa proposed that while AI will inevitably touch every role in an organisation, a senior strategic leadership role – such as a Chief AI Officer – is key to determining the best course of action for effectively driving AI transformation. Melanie agreed that existing roles such as CTOs and CIOs might "one day become the Chief AI Officer", agreeing with Melissa's earlier remark that AI will "just become part of everyday business". Dr Harrick added a unique take on this discussion, using an analogy to propose that "the role of the Chief AI Officer, if there is one, is much like a team coach", whose key responsibility is "making sure that all these players achieve their true potential". The discussion also examined some of the best recent use-cases of AI in the local business landscape and delved into the best ways to roll out AI technology in the workforce. Melissa and Harrick expressed conflicting perspectives on the latter, with Melissa Harrick prioritising a "people first approach" to generative AI while Dr Harrick proposed taking a "technology first" approach.   Tackling the ethical dilemmas of AI adoption The conversation then segued to the ethics of AI adoption, with Melanie posing the question of how we can maintain a skilled workforce when AI is accelerating so rapidly. She encouraged leaders to ask, "what is AI best used for, and where can we preserve some of these roles that actually grow the industry?" The panel also reflected on the ethics of striking a balance between enforcing regulation to mitigate risks without stifling innovation. Dr Harrick reserved judgement of the efficacy of recently introduced regulation globally, stating that "it's not yet clear whether any of these will work or will slow something down." Meanwhile, Melanie raised the ethical dilemma of how to best store the copious volumes of data that generative AI necessitates. She spoke to recent examples of how TPG embraced a more heavy-handed approach to its data governance to manage the risks of generative AI, describing how, after initially deciding to 'switch off' Chat GPT due to privacy concerns, the company instead opted to modernise their data architecture. "We quickly realised you can't automate a bad business process", Melanie explained. "'Not only are you going to get the wrong answer, but you will also receive it in the wrong business context."   Future-fit organisations need leaders Rounding out the discussion, Melissa Irwin shared how AI can positively impact cultural change and employee engagement. While she was quick to share the benefits of artificial intelligence, she also shared how AI could be detrimental to an enterprise's progress, emphasising the need for companies to shift from 'doing' digital to 'being' digital. Melissa suggested approaching AI was best done "one bite at a time" – she noted that we need to teach people what AI is and to embrace it so that they take it beyond personal use and into their workplace. "You have to educate people, so they know the risks of using AI", she expressed. "People need to be part of the AI guard rails and be the human firewall." At its core, the conversation revealed that while AI is an inevitable part of the future of business, there is a need for leadership roles in organisations to catalyse this change. Turning the focus to one of the most critical issues businesses face today – the energy transition – our next panel delved into the way advanced technologies, particularly AI, will play a critical role in accelerating the energy transition. In Powering the adaptable enterprise,

key business leaders across industries throughout the region came together to discuss the role of emerging technologies in unlocking the potential of clean energy solutions and ensuring a smooth transition. Moderated by Amy Duggan, the discussion features Matt Cheney, Executive Manager Energy Transition at Western Power, Gordon Dunsford, Executive GM Digital at AEMO, Alex Heath, Head of Climate & Energy Division for the Commonwealth Treasury, and Mohd Yusri Mohamed Yusof, Senior Vice President of Project Delivery & Technology at PETRONAS.   What role does Asia Pacific play in the energy transition? To set the scene, the discussion commenced with a reflection of what gives the region a unique position in the energy transition today. Alex spoke to the complexity of the regulatory and policy landscape in Australia compared to the rest of the region, while Gordon explained his perspective that Australia faces a "tyranny of distance" due to its isolated geography, presenting unique challenges for its energy transition.   Converting challenges into advantages Drawing on his industry experience at Western Power, Matt Cheney underscored the importance of meaningful industry partnerships to tackle these challenges, highlighting that "the partnerships that are really going to make the most difference are the ones that are genuinely collaborative". Shifting the conversation to competitive advantage, Mohd Yusri shared insights as a key leader of the first oil and gas company in Southeast Asia about the benefits of being an early adopter in the energy transition. He explained, "being an early adopter is something that necessitates learning on the go. Aspiration alone does not allow an organisation to move forward. First, you need to galvanise the organisation, and secondly, you need to galvanise the ecosystem" to get buy in, he stated.   The role of AI and emerging tech in sustainability Changing beat, the discussion moved to the one of the biggest topics of the year: AI, and its role in accelerating the energy transition. Matt Cheney spoke about how "in the short-term, AI is going to play more of a role of forecasting" and "advanced modelling to make better decisions", while Alex added her perspective that the uptick in AI and data centres use will also put pressure on energy resources. To counter this argument, Mohd Yusri shared his optimism that technology will eventually catch up to a point where increased usage doesn't necessarily equate to sustainable impact. In this line of thought, Mohd encouraged business leaders to critically question how much they data they really need to seek ways to reduce their environmental footprint. "You don't really need all the data", he proposed. "Understand what data is important so that you can be targeted and purposeful. Maybe you can reduce your energy, by purposefully understanding what you really need." Each of the panellists agreed that emerging technology plays a key role in alleviating this pressure on our existing energy infrastructure, with Matt adding that interdisciplinary "partnerships across the value chain" can further accelerate this process. He also suggested that this approach will make clean energy alternatives more viable for the consumer, countering Alex's argument that the solution solely lies on consumers adopting behaviour change. To round out the discussion, Amy shared the key takeaways of the panel discussion, underscoring that innovative technology will be critical in the next chapter of the energy transition. Digitally accelerating the adaptable enterprise brought together tech leaders from a range of sectors and industries to explore how CIOs are leveraging emerging digital technologies to foster adaptability. Moderated by Adam Spencer, the panel featured insights from Nicola Dorling, Group CIO of

Downer, Alex Jones, CIO of Powercor, Mirella Robinson, CTO of MLC, and Siva Ganesan, Global Head AI.Cloud at TCS. Nicola highlighted data's crucial role in asset management, citing rail's leading use of real-time data and IoT, and energy's use of digital twins. She noted social infrastructure will face significant disruption, but it currently lags. Alex addressed the challenges posed by the rapid transformation to renewable energy and the influx of new technologies. ''Everyone has a lot more data than they are using properly. The amount of data we're gathering from customers is almost unlimited.'' He elaborated on how Powercor navigates technological change while balancing core operations with the emerging trend of IT democratisation across business units. "We need to find a way that everyone can contribute to innovation and technology without being too prescriptive or too lax,'' he said. Mirella agreed that taking on the burden of risk in technology should be "everyone's role".   Bringing people along for the journey The conversation turned to the importance of bringing the entire organisation along the innovation journey. Alex argued that looking to people for insights will be key to overcoming this challenge; "a lot of people in our company love tech. We need to find out how people are using it and what they want to do with it. If you listen, you can find ways to make improvements.'' Nicola agreed with Alex that it was more about employing adaptive leadership. She discussed Downer's current approach to consolidating data hubs and working to understand what AI guardrails need to be in place. Mirella reflected on the biggest challenges MLC and the healthcare and insurance industries have faced and how technology has played a pivotal role in solving them. She went on to discuss the fine balance between honouring the privacy of users and utilising their data to improve their customer experience and outcomes. "Customers have a high expectation that you are doing the right thing with their data,'' she said. Especially given the volume of sensitive information that MLC hold, she built on Alex's statement that data should be everyone's responsibility. We are working to "cultivate a data culture that isn't just a technology orientated one but is a responsibility across the organisation.''   How will this work in practice? Siva Ganesan explored the strategic decision-making behind choosing to build or buy technology solutions for businesses. He argued that large enterprises will have greater "bespoke requirements" whereas smaller organisations will be more influenced by cost factors which may lead to a subscribe and buy approach. "Generally, it's a combination of a two, depending on how heavily you want to standardise or customise will be the decision."   Creating the technology leaders of the future The discussion drove home the crucial role CIOs play in creating adaptable organisations and driving exponential value through technology innovation when developing internal and external ecosystems. The panel concluded by discussing misconceptions about technology leaders. Mirella and Nicola emphasised their holistic business vision and focus on transformation. Siva countered that " the coolness of the technology" shouldn't be a substitute for problem-solving. Following the recent announcement that the TCS Sydney Marathon presented by ASICS had become the seventh Abbott World Marathon Major, the first AWMMajor in the Southern Hemisphere, a panel of elite athletes gathered to share their experience of learning to thrive and win in a competitive world that is constantly evolving. Featuring Olympic legend Cathy Freeman OAM, Wayne Larden, CEO of Pont3 and TCS Sydney Marathon Race Director, endurance athlete and speaker, Tim Franklin, from

Tim Runs the World, and Paralympian and Wheelchair Athlete, Kurt Fearnley AO PLY, the audience buckled in for an inspirational sprint through the journeys and lessons of some of the movers and shakers of the Australian sporting world. Moderated by Amy Duggan and Adam Spencer, the session kicked off by delving into the biggest moments of the panellists' careers and the lessons they learnt along the way about turning challenges into opportunity. Turning challenges into opportunities The speakers highlighted the adaptable mindset and mental preparation needed to overcome marathon challenges, drawing parallels to how businesses must embrace constant change. They emphasised reframing challenges as opportunities – shifting your perspective from something you "have to" do to something you "get to" do – along with the vital role of community for resilience, akin to how businesses should connect with their customers. Cathy Freeman shared insights about navigating change through the lens of her experiences as an elite athlete. Just as organisations need to be agile, adaptable and ready for whatever comes next, so do athletes. Cathy observed that when she crossed the finish line at the Sydney Olympics, she was not prepared for the reaction that followed – "I was prepared for the running, but it is the in-between that is difficult". Cathy shared that her motivation came from a hunger to overcome adversity and succeed, with setbacks only making her more determined. "It is a spiritual and transcendent experience – you become the highest version of yourself. It is so much more than a physical pursuit, it makes you feel like you are above everything," she said. Tapping into the power of community Shifting the discussion, Warne Larden discussed his perspective on the changing sports industry, noting that marathons can change lives and are great for the community, government, and businesses in Australia by promoting health and wealth. He also highlighted how the TCS Sydney Marathon was going to transform the city, community and business in many ways with the benefits it would bring from the economic impact growing from around $30 million last year to $150-200 million now that it has achieved its status as the seventh Abbott World Marathon Major. Wayne noted the Sydney and New York marathons allow people to dream of accomplishing something "impossible" and shape their marathon journey around it. Embracing adversity: Lessons in resilience and growth As a Paralympian with an impressive resume of achievements, Kurt Fearnley revealed the overlooked aspect of striving for success, sharing how he conquered the Kakoda track doing 18 months of preparation. Kurt said it was brutal, but the hardest thing was to stop. "You had the why and a purpose that was extraordinary", he explained, "and you just knew that as soon as you started that chain, it would keep going". He highlighted that the collaboration and support of others is key just like it is in business. Tim Franklin, an endurance athlete who ran over 26,000 kilometres across five continents within 576 days, shared personal stories about his journey with running. He explained how adversity is a key motivator for him. When asked what inspires him to train, Tim explained "I fell in love with being challenged and becoming the best version of me". His guiding mantra was "to be better today than I was yesterday". Adversity and resilience were central themes, as panellists highlighted that overcoming challenges and setbacks is essential for growth. Their personal stories emphasise that in both sport and business, viewing challenges as opportunities, maintaining an adaptable mindset, and harnessing community support are crucial for thriving in an ever-evolving

environment. The panel concluded with a final announcement celebrating the TCS Sydney Marathon achieving Abbott World Marathon Major status, with Wayne Larden presenting Girish Ramachandran with an AWMM plaque. TCS Asia Pacific Summit 2024 concluded with final remarks from Vikram Singh, Country Head of TCS Australia and New Zealand. Vikram shared a uniquely Australian perspective on the elements and approaches that make an enterprise truly adaptable, highlighting some of the regional differences that make Australian enterprises pacesetters in some aspects of the AI revolution, while slowing progress in others. Synthesising key takeaways from across both days, Vikram shared his observation that "most businesses are looking at two dimensions – productivity and efficiency, and the customer and employee experience". He deduced that the third dimension to consider in this equation is the "quality of data, security framework, talent and compliance frameworks". Vikram shared a final call to action for business leaders to create perpetually adaptable enterprises built to stand the test of time. "If we can have innovative leadership driving and building ecosystems, and foster partnerships which make us stronger, I think we can achieve the transformation agenda". "On behalf of TCS both locally and globally, I want to commit that we are invested in this market and in this region. We aim to build deep partnerships and support your journey of transformation which will be seamless, secure and successful". Day 2 wrapped up with a lively and illuminating recap from co-hosts, Amy Duggan and Adam Spencer, a final thanks to all involved, and a parting message to the key decision makers and leaders in the room to embrace the exciting frontier of change and transformation that will define the years ahead. Here are five key takeaways from Day 2 of TCS Summit Asia Pacific 2024: TCS SUMMIT ASIA PACIFIC 2024 TCS Australia and New Zealand @tcsanz =====================

Build an inclusive-regenerative-thriving-society

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Drive transparency with all stakeholders

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Embed circularity in your products and service

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Tackle climate change and preserve our natural resources

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Innovate for social and environmental impact

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TCS Product Life Cycle Profiler

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mitigate risks. In addition, these methods are non-scalable, costly, and time-consuming, which can discourage repeated LCA across product lines and manufacturing facilities. Get closer to your sustainability goals with TCS Product Life Cycle Profiler   TCS Product Life Cycle Profiler is a scalable, end-to-end LCA solution based on open-source technologies and a cloud-agnostic architecture. It gathers data submitted via a primary data uploader and transforms it into actionable insights you can use to meet your sustainability goals. Key features: Computes the environmental footprint of products originating from a specific facility. Offers a comprehensive view of the impact from materials, transportation, suppliers, energy consumption, and processes.   Displays environmental impact hot spots in a dashboard, giving decision-makers visibility into intervention opportunities Provides access to secondary data sources and computes environmental impact across nearly 20 categories (from global warming potential and human toxicity to water used and ozone depletion). Helps analyze data with activity-based, footprinting algorithms Integrates with standard identity access management systems to improve security and access management Identify green opportunities across the value chain through end-to-end life cycle assessment The TCS Product Life Cycle Profiler offers enterprises the following benefits: 100% coverage for all products from a manufacturing facility 50% improvement in LCA throughput and up to 70% reduction in LCA cost Higher LCA frequency, which means regular monitoring of the environment impact of a manufacturing facility and valuable insights for decarbonization programs Better insights into environmental impact hot spots across the product value chain, helping identify opportunities for green initiatives Helps organizations chart their net zero journey When you partner with us, you can make the most of the following: Our alliance with a partner who has years of LCA experience and our competency in end-to-end service delivery Actionable insights-led advisory services to drive downstream sustainability initiatives Our scalable approach to impact accounting with better coverage of products at a lower cost Our sustainability management tools that can run scenario simulations for decarbonization   Ensures 100% LCA coverage for products manufactured Covers more than 20+ environmental impact areas Reduces LCA cost by up to 70% A scalable approach to product life-cycle assessment Win big on your sustainability KPIs with data and analytics Closing the sustainability data and insights gap TCS Envirozone™ Ready to begin your journey toward a better future? Theme Font size Line height
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TCS Sustainathon: Inspiring future thinkers in ANZ

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companies in the region. The idea is to inspire them to harness their problem-solving and design thinking skills to solve real-life sustainability issues and tackle global climate change. Sustainathon 2022, launched with the theme of 'People, planet, progress', focused on finding solutions for challenges such as the availability of clean water, avoiding cabin food wastage, using sustainable packaging ideas, and more. Over 10 weeks, students in groups of one to six designed solutions to innovatively tackle the problem statements set by the Sustainathon challenge partners. The solutions offered companies a fresh perspective on addressing the issues they face and how businesses and consumers could change their behaviour to create a greater impact. The TCS Sustainathon invited university students to create sustainability-led solutions for leading organisations to address diverse real-world issues in social equality (people), environment preservation (planet), and sustainable economic pathways (purpose) from our challenge partners Virgin Australia, the Australian Institute of Company Directors (AICD), Fletcher Building, ASB Bank, and Ethan Indigenous Technology. A few entries stood out from all those entries received. The winning team from Victoria University of Wellington and the University of Waikato presented their solution 'Unwastable' in response to Fletcher Building's challenge of cutting waste disposal costs and reducing the use of packaging materials that end up in landfills. The team's solution leverages technology to create a digital resell platform that helps measure and rate the reuse and environmental ratings for firms. A team from the University of Auckland won the challenge set by ASB Bank to help move New Zealand's small and medium enterprises (SMEs) along their climate change journey at pace. The team's solution focussed on using organic products to eliminate other wastes. The solution leverages technology to enable customers to make fully informed decisions. For the challenge set by Ethan Technology, the winner from Deakin University came up with an exciting way to develop sustainable technology for indigenous communities. Their solution was to provide interactive, educational maps to 'story tell' the history, significance of people and place, and more to create a living 'both ways learning' solution. Responding to AICD's challenge to develop solutions to help solve the water crisis in Australia, students from Deakin University created a smart water reader. It provides live data feeds into a GIS map, enabling households and industries to see the data on the website or mobile app. With knowledge comes the ability to understand, adapt, and change. For the last challenge, set by ASB Bank, the winning team from the University of Auckland sought to help SMEs count and credit carbonate diversion from landfills. There is no established waste stream for carbonate in Auckland city, and likely among the 23,040 SMEs in New Zealand accommodation and food services. The solution, titled FlexOurMussels, leverages five different technologies to enable a carbonate waste stream. It reduces the embodied energy of construction materials that incorporate this. It will create a more circular economy and awareness of long-term carbon capture and give credit where due. It was great to see such innovation and passion from students for a sustainable future. "It is reassuring how bright our future looks with such capable and committed future talent, who are leveraging the power of technology and innovation to pioneer sustainable opportunities," said Vikram Singh, Country Head, TCS Australia and New Zealand. The Rise of Sustainable and Responsible Supply Chains How Digital Twins Can Help Companies Boost Sustainability Sustainable Business Transformation:

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Why sustainable business transformation gives you the edge

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play their role in Europe reaching its climate targets. As a result, organisations will need to comply with sweeping proposals under the European Green Deal, and with legally binding plans to reduce harmful emissions by 55% by 2030 and advance a Just Transition.   Taken together, these developments constitute serious challenges for organisations that are yet to introduce comprehensive sustainability strategies.   They are likely to struggle to attract talent, as employees are now laser-focused on companies' environmental and social credentials and values. Then there is the fact that sustainability can have considerable benefits for a company's bottom line, not just the environment. For example, reduced energy usage does not just lower emissions, it also lowers costs and, by inference, boosts profits. Without a pervasive sustainability strategy, companies will not be able to build greater futures for themselves, society, or the planet. Technology will be critical to supporting both the implementation of these strategies and monitoring compliance. Sustainability at the heart of the digital transformation Legislators view the digital transformation of businesses in Europe as a key pathway to decarbonisation. The EU's proposals for Europe's digital future place sustainability at the heart of technological transformation. The impact digitalisation and automation can have across different sectors is varied, but the gains for both business and the environment are well documented. While technology companies may appear to have an inherent advantage because they are already highly digitalised, it's important to acknowledge that even digital technologies can differ in their respective environmental impact. What's more, no two organisations— digital natives or not—are the same. What works positively in one setting may be unsuitable in another. "Successfully rolling out a sustainable digital transformation demands a rigorous approach that can go beyond the capabilities and resources of the organisation itself," explains Eugenio Longo, Sustainability Director, TCS Europe.   Engaging a strong and experienced transformation partner can therefore be vital to success. An ecosystem mindset For businesses embedding their sustainability strategies, applying a holistic approach will be the key. One of the biggest challenges for companies, as they start on this journey, is developing a business and systems integration mindset. Working in silos means they will find it harder to implement sustainability throughout the organization. Overcoming these internal frontiers must also extend to IT systems to enable wide-reaching data mining and processing. This holistic approach to business, IT and sustainability must critically extend beyond the boundaries of the organisation itself and include the entire ecosystem. For example, for emission reporting, the Greenhouse Gas Protocol differentiates between scope 1 emissions, which encompass the organisation's direct emissions, scope 2, which are those an organisation incurs indirectly, such as by purchasing electricity made from fossil fuels, and scope 3, which relate to the supply chain.   To cover all three areas, the company must understand climate and ESG-related impacts across the entire value chain. IT and AI are the 'control tower' of the organization Managing the ensuing complexity will vitally rely on IT infrastructure — supported by AI. Capturing the necessary insights through data, connecting the dots across the ecosystem, and acting on them will require effective governance. "IT infrastructure will become more and more the governance tool of companies and their ecosystems," highlights Longo. "It will be the neural network of the enterprise, its control tower." He points to solutions such as digital twins that enable scenario

modelling to help monitor and benchmark an organization's ecosystem. And there is also a growing role for AI. "If you need to understand the sustainability of your supply chain, you can use AI to do so, for instance by crawling annual reports, analysing the information and harmonizing the data," Longo points out. When a company's ecosystem includes hundreds or even thousands of partners, AI could massively simplify what have previously been highly complex scope 3 assessments. Longo stresses that there is no one-off fix but that organizations must adopt a flexible and dynamic approach. This will benefit their sustainability efforts and enable them to pivot more quickly as the market environment changes. Sustainable business—the defining challenge The joint challenge of reining in climate change and building greater futures for businesses has become a defining issue of our time. It's abundantly clear that achieving this goal goes far beyond the capabilities of any single sector, be that government or industry. As joint stakeholders, we will have to pool our political, business, and intellectual capital to build the sustainable world we all want to see. Successful digital transformation will play a major role in our sustainable future. At TCS, we've built a strategy to help European organizations live up to the vital part they must play in building a greater future for the region. Working together like this is the only way we can make sustainability a reality. The Rise of Sustainable and Responsible Supply Chains How Digital Twins Can Help Companies Boost Sustainability Powering Up Responsibly: The Sustainable Growth of Green Data Centers TCS Sustainathon: Addressing Real-world Sustainability-led Challenges Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

How digital twins can help companies boost sustainability

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Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. As the climate emergency continues to build, reducing carbon emissions and adopting sustainable business practices remain a priority for many organisations. Regulation around carbon accounting is putting further impetus behind their efforts. Digital twins can help with both these priorities, identifying impactful changes companies can make to improve their sustainability. They can also model the impact of environmental factors and human activities, enabling organisations to make better decisions on their resource usage, emissions reductions and energy efficiency. Record temperatures, wildfires and floods across the entire northern hemisphere are just some of the latest symptoms of climate change. These events underscore, yet again, the need to double down on lowering carbon emissions and adopting more sustainable practices. Legislative initiatives such as the EU Green Deal will support this shift, soon requiring tens of thousands of companies to report on their sustainability performance and progress. It means businesses will have to collect an unprecedented amount of data—internally and across their entire value chain. However, the biggest challenge will be figuring out the most impactful changes they can make to their carbon footprints. Digital twin technology can be instrumental in this process.   Digital twins have many applications, but there are two significant areas where they can support organisations. Firstly, by reflecting real-world ecosystems, they can accurately simulate what effect potential alterations or additions could have. This can reduce reliance on surveying and other analogue processes. Secondly, they can help measure sustainability in value and supply chains. By creating a "chain of custody", a digital twin can help identify efficiencies without physical audits. Running in tandem with their real twin, which continuously feeds them data, digital twins can identify areas for improvement and propose solutions. Already established in sectors such as manufacturing, they could become commonplace in business and society by 2035. That's according to TCS' latest Digital Twindex report which surveyed scientists, futurists and subject-matter experts from TCS' networks.   Healthcare, mobility, and retail

are the sectors most likely to adopt digital twins within the next three years, the experts predict. So the technology could soon be used to optimise the CO2 footprint of future hospitals, shopping malls and transport networks. How can digital twin technology help with sustainability reporting and emissions reductions? There's no one-size-fits-all approach for organisations looking to improve their environmental performance. This is why virtually replicating and manipulating a business can create significant advantages. Digital twins can model the impact of varying environmental factors and human activities, allowing companies to make more informed decisions on such as the best use of resources or cutting emissions most effectively. They can also help optimise energy usage and waste management. In addition, the technology can simplify Scope 3 emission control across complex supply chains, using real-time analytics to "audit" all elements in the supply chain virtually.   Nearly two-thirds of TCS' Digital Twindex panellists expect broad adoption of digital twins in a sustainability context within the next six years. As one of the most established users of digital twins, there are many examples of how the technology has aided energy efficiency in manufacturing The World Economic Forum reports that at the factory of a South Korean electronics company, a digital twin of an assembly line helped improve productivity by 17%, product quality by 70% and energy consumption by 30%. Similarly, a French company used digital twin technology to cut its energy use by a quarter, reduce material waste by 17% and lower CO2 emissions by 25%. Digital twins can also affect sustainability by simulating real-world scenarios, such as the lifecycle of machines, to prevent failures and breakdowns that could lead to environmental damage or pollution.   What are typical emission reduction scenarios that digital twins can simulate? With data from the entire value chain feeding into systems, digital twins can unearth new routes for emission reductions and circular economies. One example is energy management. According to various Energy Council reports, commercial and industrial buildings consume 94% of the world's total delivered energy and emit more than one-third of greenhouse gases. However, usage patterns are unpredictable, especially given the size and complexity of enterprise-scale operations and the continued growth of floor space.   An energy solution can have digital twin technology built in, so customers can use predictive data analytics to become more energy efficient, meeting sustainability and financial goals. The technology can adapt to new buildings coming online, fitting them into emission reduction strategies.   Digital twins can support emissions abatement at scale by allowing organisations to simulate the impact of strategic decisions, such as where to locate new factories. For example, could a company reduce emissions by siting a new facility close to customers, avoiding transport emissions? Or would a site further away but with greater access to renewable energy—despite increased transport emissions—be better?   As companies strive to improve sustainability in the face of the climate emergency and tighten regulation, digital twins can support strategic decisions that benefit business and the planet. Healthcare, mobility, and retail are the sectors most likely to adopt digital twins within the next three years, the experts predict. So the technology could soon be used to optimise the CO2 footprint of future hospitals, shopping malls and transport networks. The Rise of Sustainable and Responsible Supply Chains Sustainable Business Transformation: Building a Better World Powering Up Responsibly: The Sustainable Growth of Green

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email again. IoT-based systems can create exponential value by adding digital intelligence to physical objects. By connecting products, processes, plants, and people, organizations can create memorable customer experiences and engineer digital ecosystems without boundaries. We call this Bringing Life to Things™. Intelligent Predictive Self-aware Autonomous Connected plants Gain a competitive advantage with improved productivity, operational efficiency, and resilience from connected plants. Read more Connected services Power your servitization journey to create greater customer value and new revenue streams with reliable products and services. Read more Digital thread Harness the power of product data for increased business agility and performance. Read more Intelligent automotive Innovate and adapt to transition from hardware to software-defined vehicles. Read more. Intelligent products Leverage our digital engineering expertise to provide superior customer experiences and take software-defined, AI-embedded, intelligent products to market faster. Read more Geospatial Intelligence Services Creating a world where digital interpretations of reality influence decision-making backed by situational awareness and location intelligence. Read more TCS DigiFleet™ TCS Intelligent Power Plant TCS InTwin™ TCS Clever Energy™ TCS Smart Store TCS Digital Manufacturing Platform Six recommendations to realize business value from industry 4.0 Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Leveraging Digital Intelligence to Build a Truly Connected Enterprise TCS positioned as a market leader in manufacturing intelligent operations services by HFS research Leveraging industrial digital twin for better business value Software-defined products: the path to product transformation Ensuring the digital factory delivers on its promise Software-defined vehicles: Four takeaways from the aviation sector Discover the IoT advantage. IoT systems are integral to digital ecosystems because they connect to external parties. This connectivity can reconfigure how industry players interact with customers, suppliers, partners, and the competition. REGU AYYASWAMY Ready to bring life to things? Theme Font size Line height =====================

Making industrial plants intelligent with TCS InTwin™

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requirements across the key business functions of retail—merchandising, stores, and supply chain. TCS Smart Store empowers retailers to reimagine store operations, optimize operational costs, secure store, improve productivity, and enhance customer experience. The service allows retailers to: TCS Smart Store helps retailers meet rising digital demand by providing a unique shopping experience within and beyond physical stores, ensuring effective inventory management, while achieving productivity and business goals. We partner with global retailers and help them become digital-first businesses. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height

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believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Energy consumption and emission patterns for commercial and industrial organizations are unpredictable, given the size and complexity of enterprise operations. IoT, edge, and AI-based analytics are quickly becoming the go-to technologies to achieve energy efficiency and carbon neutrality goals. Award-winning Clever Energy solution can help commercial and industrial organizations become more sustainable, ensure energy and cost efficiency, reduce energy consumption, and decrease carbon emissions. That's according to various energy council reports. The energy usage patterns of these buildings are unpredictable, given the size and complexity of enterprise operations. Enterprises are seeking to use IoT, edge, and AI-based analytics to achieve energy efficiency and reach their carbon neutral goals. Clever Energy is an award-winning enterprise-level energy and emission management system that helps commercial and industrial organizations be more sustainable, ensure energy and cost efficiency, and decrease carbon emissions. Clever Energy provides a comprehensive platform covering the multiple energy functions of an enterprise and supports the integration of heterogeneous systems and assets. Key features include: Just-in-time maintenance: Uses AI-ML framework to monitor the energy demand, usage pattern and escalate anomalies. Self-optimizing feature: Adapts to new working conditions without manual intervention to provide customized analytics. Scalable architecture: Ensures rapid deployment within 8-10 weeks and expands to a range of equipment. Carbon management and reporting: Provides accurate carbon emission data to support compliance and sustainability. An infographic depicting Clever Energy, an award-winning enterprise-level energy and emission management system. It helps commercial and industrial organizations be more sustainable, ensures energy and cost efficiency, and decreases carbon emissions. Acquire real-time energy data from diverse infrastructure spread across geographies, and legacy and proprietary systems. Drive 24x7 real-time energy monitoring and gain enterprise-wide consolidated view to provide actionable insights for faster decision making. Make informed decisions through predictive analytics to improve assets utilization. Gain flexibility in delivery and cost savings through unique commercial pricing models. Ensure faster realization of ROI where the rollout is completed within two months, leading to a tangible ROI (as high as 300%) after 8-16 months. Adapt quickly to new buildings and new patterns in consumptions, outages, weather, and occupancy. When commercial and industrial firms partner with TCS, they gain numerous benefits Powered by Internet of things (IoT), artificial intelligence (AI) and cloud, Clever Energy has a strong data acquisition capability to connect heterogeneous operations technology (OT) and information technology (IT) systems across the enterprise. An in-built digital twin setup and AI-ML-based data models with augmented intelligence provide an integrated energy view, helping organizations take informed decisions through predictive analytics/energy data analytics, become more energy efficient, and meet their financial and sustainability goals. TCS recently won the 2020 IoT Global Award for its Clever Energy solution with its unique proposition. Winner of NASSCOM Engineering & Innovation Awards (2021) Winner of

IoT Global Awards (2020) Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height ======================

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address changing customer demands. With proliferation of telematics and sensors, there is an abundance of data collected. Insights gained from real-time data can be a gamechanger in a successful digital makeover of the multiple processes involved. IoT-powered cognitive technology can enable organizations to proactively navigate diverse fleet and freight disruptions, reimagine operations, launch new business offerings, and gain a competitive edge. TCS DigiFleet is a suite of solutions focused on providing real-time actionable insights for assets on the move, and helping organizations reimagine supply chains. Powered by an IoT and AI-ML engine, the suite provides contextual and situational insights on fleet and supply chain operations by analyzing real-time data from the heterogeneous ecosystem. It offers modular, industry-specific features on software-as-a-service models to accelerate digitalization of fleet and supply chains through two pre-built modules: dPulse: Optimizes the total cost of ownership (TCO) and drives sustainability strategies by increasing fleet reliability and utilization while reducing fuel and maintenance costs and providing improved efficiency in operations. dMove: Predicts supply chain disruptions in a multi-modal, multi-carrier network. Unified visibility, route optimization, parcel condition, and ETA prediction are few of the insights made available to decision makers. TCS DigiFleet is an off-the-shelf suite of solutions comprising microservices architecture with an heterogenous integration engine. Powered by an IoT and AI-ML engine, it has two pre-built modules—dPulse and dMove. While dPulse manages total cost of fleet ownership from vehicle health, safety, and utilization, dMove optimizes logistics operations through visibility, prediction, and remediation. With DigitFleet, users can track and trace fleets, replay trips, monitor driving behaviors, create sustainability strategies, and manage logistics using map views and geofencing capabilities. TCS DigiFleet delivers the following benefits to enterprises: Ensure 24x7 visibility of assets on the move Reduce logistic costs by up to 20% Decrease wait time by up to 30% Improve driver behavior by 60% TCS DigiFleet offers real-time, data-driven insights—for a successful digital makeover of multiple processes and improved operations efficiency. Our global telematics services are provided by experts who have decades of experience in developing and implementing solutions, and partners who enable seamless services and worldwide coverage. Our solutions are agnostic to technologies across sensors, devices, communication networks, and cloud. We enable accelerated integration and leverage existing investments. We have developed a deep understanding of our customers' business, which helps us in providing solutions to industry-specific-problems. Our proprietary algorithms give you an intellectual edge with an AI and ML engine which is core to our solutions delivering accurate results and automation capabilities across industries.   We are recognized as a leader in IoT platform and solution implementations by customers and renowned analysts such as IDC, Gartner, and Everest Group. Accelerate fleet digitalization Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height
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budget forecasting, sourcing opportunities, and asset level segmentation. Asset performance management solutions—we offer a product-agnostic convergence framework to integrate IT and OT systems. BENEFITS Reduce costs and optimize operations Develop superior next-generation products Improve customer experiences Enhance return on investment Reduce errors and improve quality   Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate?
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TCS New Product Development

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quickly and in a cost-efficient manner, while facing challenges like responding to scale, increased complexity, dynamics of globalization, reduced costs, and reduced cycle times. TCS SOLUTION TCS New Product Development offerings address challenges spanning the complete product development life cycle, from ideation and design to manufacturing and production. We enable you to bring innovative products to the market quickly and efficiently. We offer: Mechanical and Electromechanical Engineering (MEM) including end-to-end design solutions Embedded Systems that cover unique designs and address the need to perform real-time evaluations Real Time offering to develop end-to-end data acquisition and automation solutions Engineering Simulation solution enables you to assess and improve product performance Engineering Automation for significant productivity gains and quicker time-to-market responses Technical Publications compile product documents synchronized with engineering changes, and reduce product development lifecycles BENEFITS Automate development processes and product designs Reduce product development lifecycles Obtain faster time-to-market responses Facilitate your customers to improve product performance Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? =====================

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TCS Product Lifecycle Management Services

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multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. IoT and Digital Engineering / Solution You have these already downloaded We have sent you a copy of the report to your email again. Manage all aspects of your product evolution.   CHALLENGE As companies' operations expand, they face issues of longer time-to-market, rising cost, high rejection rates in quality approvals, and compliance to regulatory norms. Silos of redundant data, duplication of efforts for design and manufacture, numerous CAx tools for Product Definition, limited interoperability, multiple disconnected sites across the world, diverse standards, processes across sites, and multiple legacy systems add to the challenges. TCS Services TCS Product Lifecycle Management services are focused towards providing visibility of product and performance by integrating data, knowledge and business processes, and making them accessible across your extended enterprise. Our PLM services are more than just enablement of technology capabilities. We help transform the way organizations manage their product related processes transcending functional, enterprise, and geographical barriers and innovate by leveraging the company's intellectual assets. We have built a wide range of PLM services to digitize and manage the entire product lifecycle, from product conceptualization, to design, manufacturing, installation, maintenance and finally retirement. We work on cutting edge PLM products to provide services and solutions across automotive, aerospace, hi-tech, retail, and life sciences verticals. BENEFITS Reduce execution time Increase operational efficiency Improve on-time delivery Reduce design and production rework   Ready to secure your digital estate?
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IoT edge powered by TCS Connected Universe Platform

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cost: Reduce bandwidth/connectivity cost along with processing and storage cost. Enable better control: Handle compliance, privacy and security closer to the data source.   Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate?
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TCS Connected Universe Platform Analytics

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From quick AI model development to flexible deployment on any cloud or edge environment, the benefits are many and can help you get to IoT-based digital transformation faster. CHALLENGE In the IoT/IIoT world, while dealing with large volumes of data from various kinds of devices, we often face some hard technical problems such as working with small data sets, lack of labels and training samples, unbalanced data sets, missing or irregular data, noisy data and so on. To deal with the challenges faced in processing IoT data, a smart and efficient analytics tool is required that can enable faster data insights without having to worry about these complexities. SOLUTION TCS Connected Universe Platform Analytics is an advanced analytics component of TCS Connected Universe Platform, our IOT platform. Generating insights, predictions, and prognosis on IoT data are the critical success factors for IoT-based digital transformation projects and TCS Connected Universe Platform Analytics is particularly suited for these objectives. Its key features are: Out-of-the-box algorithms for data preparation—transformations, data filtering, noise cleaning, missing data imputation, feature extraction, etc. Advanced analytics on sensor-generated time series data and other rich data such as videos and images Focus on unsupervised machine learning techniques Out-of-the-box library of algorithms for diagnostic, predictive and prognostic analytics Seamless testing, training and deployment of models to production The use cases of TCS Connected Universe Platform Analytics comprises failure prediction, equipment health estimation, product quality tracking, and predictive maintenance. These use cases are enabled thanks to TCUP's ready-to-use algorithms, quick AI model development, and flexible deployment on any edge or cloud environment, to name a few key capabilities. BENEFITS Here's what you stand to gain when you leverage TCS Connected Universe Platform Analytics: TCS Connected Universe Platform Edge TCS IoT and Digital Engineering Advisory Software-defined products: the path to product transformation How IoT-led Connected Services Transform Business Models Ready to secure your digital estate? =====================

Cargotec goes digital in cargo handling

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Driving excellence with Digital Manufacturing Platform

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solutions for enabling digital capabilities. It brings together all core elements needed to build intelligent digital twins of plants, systems, and processes.   Its composable architecture helps enterprises to be future ready and gives them the ability to onboard use cases quickly. As a flexible and domain-agnostic platform, it can be scaled up or down easily, and configured based on preferences of enterprises and regulatory requirements. Available on hyperscaler platforms and on-premise environments, its modular architecture provides ease of integration with external systems, RTLS devices, sensors, and existing infrastructure.   With DMP, you can gain a competitive edge through: 20–30% reduction in unplanned downtime 10–20% reduction in maintenance/manufacturing costs 10-20% reduction in cost of quality Increased safety compliance Optimized supply chain, cost, inventory, and logistics Improved collaboration with stakeholders End-to-end visibility and traceability across the value chain Safer and sustainable environment   By partnering with us, you stand to benefit from our proprietary solutions and key differentiators: Data-driven manufacturing: Our flexible data modeling framework powered by adherence to manufacturing standard helps in augmenting the platform with additional capabilities quickly. Contextual knowledge across domains: We have developed a deep understanding of our customers' business, which helps us in providing solutions to industry-specific problems. Proprietary algorithms: We give you an edge with our integrated AI and ML engine, which is one of the core features that delivers accurate results and automation capabilities across industries. Leader in IoT platforms and solutions: TCS is recognized by customers and renowned analysts such as IDC, Gartner, and Everest Group as a leader in IoT platform and solution implementations. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Theme Font size Line height =====================

Build cities of the future with TCS Smart City Services

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countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again.   Envision cities of the future for sustainable growth. Rapid urbanization has created unprecedented constraint on resources for city administrations, public utilities, and services infrastructures. To accommodate the urban population in a sustainable and efficient manner, governments need to be responsive, flexible, and integrated. Only then can they serve their citizens well amidst such expansive growth. Smart services range from traffic management to energy efficiency management, smart utilities, lighting systems, and healthcare. These coupled with effective e-governance, and the necessary regulatory frameworks will play a pivotal role in building cities of the future.   Build connected and safer cities with an array of smart IoT services. TCS' Smart City services help local governments make cities smarter to foster better quality of life through sustainable economic growth. The service covers: Smart transportation: End-to-end transportation service for vehicle tracking, dispatching, parking area management, and optimal fuel consumption. Smart campus: Indoor navigation to find places of interest, optimal routes, and emergency exits. Smart parking: Cost-effective parking service using gateways and IoT to provide real-time information to the command center. Smart waste management: Smart bins with automatic messaging for bin status and pickup. Smart building management systems: Integrated service for heating, ventilation, and air conditioning (HVAC) as well as lighting, access control, and surveillance. Smart lighting: Centralized command center to manage city lights that enable scalability and real-time monitoring, control, and alerts. Smart water: Water distribution and monitoring through IoT ecosystems and data analytics. Smart energy management: Real-time monitoring of energy, assets, and systems using machine learning for preventive maintenance and energy saving. Smart environment management: Monitoring pollution levels at points of interest.   Enhance citizens' experience through streamlined operations. With TCS' Smart City services, enterprises can reap the following benefits: Higher customer satisfaction: Provide reliable and efficient public amenities. Minimized energy losses: Optimize energy, assets, and building management. Controlled revenue losses: Plug leaks and minimize theft with smart metering. Lower operating expenses: Reduce costs through automation.

Improved security: Detect threats early with video analytics-based surveillance. Bolstered e-governance: Foster collaboration and integration across public agencies. Innovate with our extensive experience, expertise, and strategic partnerships. TCS brings the following differentiators to the table: Proven experience in implementing and managing large programs globally across diverse industry verticals. Flexible partner and system integrator providing innovative business models, work patterns, and methodology across the value chain. Large pool of consultants with the global experience and technology skills to build, integrate, and deliver services on time and within budget. Global network delivery model with unmatched processes and standards. Long-term partnerships with over 98% repeat business establishing TCS certainty. Research-led innovation by collaborating with leading universities to drive innovation in the field of utilities management. For instance, TCS has set up an iCity Lab in Singapore in collaboration with the Singapore Management University, to design an intelligent water management service. Ready to secure your digital estate? Theme Font size Line height =====================

Reimagine how utilities operate with digital intelligence

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every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again.   The utilities industry is going through a massive transformation. There is an increasing shift toward eco-friendly fuels and electrification. Energy consumers are becoming prosumers. Conventional centralized power systems are moving to heavily distributed power systems as more distributed energy resources such as solar, electric vehicles, and batteries start to proliferate. Changing regulations are opening electricity wholesale markets where energy can be produced in one location and supplied to consumers in another location. The emergence of these markets will bring in new competitors. What's more, energy prices can be kept in check with consumers being allowed to choose their preferred energy suppliers. Meanwhile, with aging infrastructure, tighter regulations, and increased competition, the utilities industry is heavily relying on geographic information systems (GIS), spatial mapping, and location-based services to augment asset performance and gain actionable insights. TCS enables technology solutions for electric, gas, and water utilities to streamline and accelerate their performance.   TCS helps utilities players reinvent themselves through digital capabilities that accelerate business performance for a superior customer experience. TCS' offerings range from affinity services for empowered consumers (connected home and energy services) to sustainability services (distributed generation forecasting and integration) and electrification of mobility infrastructure (electric vehicle charging platforms). Platform for distributed energy resources (DER) and remote monitoring and diagnostics management Standalone DERMS, advanced distribution management systems (ADMS), integrated or purpose-built DERMS Virtual power plant (VPP) System integration with supervisory control and data acquisition (SCADA), ADMS, advanced metering infrastructure (AMI), GIS systems of distributed system operators, and retailers DER aggregation and orchestration services Renewable energy enablement Battery grid management Electric vehicle and electric vehicle supply equipment orchestration management DER digital twin, alternate reality (AR)-virtual reality (VR), and artificial intelligence (AI)-machine learning (ML) services   Transform and modernize grids for improved efficiency, reliability, and resilience. Our grid transformation services include the following: Smart grid analytics, asset performance management solution Grid operation optimization Digital twin, AR-VR, and AI/ML services Enterprise asset management (EAM) GIS services Grid SCADA, EMS, ADMS, and data historian Network planning and optimization Enterprise-scale grid OT-IT convergence Through these solutions, utility companies could optimize their transmission and distribution network, operational efficiencies, and KPIs.   Adding value to smart utilities operations by addressing concerns about pollution, stress on existing utilities infrastructure, spiraling costs, and aging assets. Utilities are rapidly adopting and investing in digital transformation initiatives toward smart automated operations. TCS' smart utilities services provide holistic operational insights aided by geospatial

intelligence and systems integration. Smart water management services Energy management services for pumping stations Digital twin, AR-VR, and AI/ML services OT-IT convergence services Leakage management and analytics EAM GIS services Gas distribution management Digital twin, AR-VR, and AI/ML services OT-IT convergence services Smart metering and analytics AMI and smart metering operations center   Utilities companies stand to gain multiple benefits. They can: Deliver an integrated platform for an energy value ecosystem using digital spine, intelligent social enterprise, and an experience-first platform. Assist business teams in decision making on resource balance, leakage management, plant operations, metering data, and asset operations. Build situational awareness capabilities through integration of data and systems covering operations and IT. Enable asset life cycle management ensuring data interoperability from asset creation to retiral. Provide insights into asset energy efficiencies and operational interventions. Promote adoption of extended reality and wearables for better remote workforce management and field services.   With a rich pool of industry experts, partners, and range of innovative products and platforms, we can help you achieve your energy goals. Industry and technology expertise: With over two decades of experience in the utilities sector, we have partnered with more than 90 energy and utility organizations globally, supporting more than 75 million water consumers, 70 million electricity consumers, and 20 million gas consumers. Unique OT-IT convergence framework: A 6-dimensional comprehensive assessment framework that covers OT and IT security, enterprise architecture, applications integration, digital maturity, and change management for a great transformation journey. Products and platforms: Our portfolio of innovative products and platforms include: TCS IP2™: Flexible, clean, and cost-competitive power generation TCS Clever Energy™: New revenue streams for business and commercial customers from value-added energy management services TCS InTwin™: Industrial analytics and digital twin across the enterprise TCS DigiFleet™: Optimization of fleets from asset management to compliance and cost reduction Strategic partnerships and global alliances: Areas such as DERMS, VPP, APMS, and EV charging provide utilities companies with a platform that supports large, complex, and process-intensive deployments. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to bring life to things? Theme Font size Line height =====================

TCS Cognitive AI: A platform for multimedia-driven insights

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change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Valuable insights and business opportunities remain hidden in unstructured video and image data. Today, a considerable amount of unstructured data is being produced, predominantly in the form of images and videos. This audiovisual data cannot be read or understood easily by traditional computing devices. What's more, the data is stored across multiple locations, including data lakes, databases, and social media accounts. To harness this data intelligently, organizations are increasingly looking to AI, machine learning (ML), and deep learning (DL). Computer vision can be used to extract insights from audiovisual files stored in multiple locations. Together, AI, ML, DL, and computer vision can help businesses gain a competitive edge by identifying patterns in data, gleaning better insights, unearthing new opportunities, and taking smarter, effective decisions quickly. Gain insights that enhance customer experience and improve productivity, quality, safety, and maintenance. TCS' Cognitive AI solution helps organizations across industries gain valuable insights from massive amounts of data by using computer vision and other AI technologies. An integral part of Cognitive AI is TCS' Image and Video Analytics Toolkit. Embedded with a library of reusable AI software components, the toolkit can be used as a modular building block for various applications across sectors. The modules can be easily integrated with cameras, on premise servers, or on cloud. This easy integration means companies can use TCS' Image and Video Analytics Toolkit to build industry-specific applications and solutions for: Workplace safety at industrial plants. Self-checkout and theft detection at retail outlets. Facial recognition and redaction for banking, travel, and

hospitality. Quality inspection of printed circuit boards and consumer packaged foods at manufacturing plants. Infectious disease prevention through compliance checks for social distancing. Anomaly detection at manufacturing plants using aerial imagery. Early detection of conveyor-belt malfunction. Cable inspections for oil and gas companies. Key features of Cognitive AI: Object detection and tracking in 2D Position estimation in 3D Facial recognition Optical character recognition Image data synthesis 3D image stitching Action sequencing Multi-camera tracking TCS' Cognitive AI platform offers scalable, cross-platform, cross-application, and hardware-agnostic solutions for business challenges of today and the future. Reduces time-to-market by offering reusable, easy-to-customize libraries across image and video analytics applications. Improves accuracy for AI models. Runs on an edge device, on premise server, or on cloud, while being cloud-agnostic. Improves GDPR compliance by mitigating data security and privacy risks. Offers a modular, scalable solution that is compatible across devices and software with seamless API integration.   We help you address your business goals and enrich your customer experience through industry-specific expertise and strategic alliances. Proven intellectual property: Leverage TCS' 60+ patents and 40+ publications developed through years of intensive work in data science across industries. Configurable services: Maintain complete control over your data to create and configure custom dashboards and reports for traceability. Improved inventory management: Secure enhanced inventory forecasting, planning, and maintenance practices to enable flexible operations. Modular, interoperable solution: Integrate Cognitive AI with any third-party solution for better accuracy and time-to-market. Strategic partnerships and global alliances: Accelerate your transformation and become an automated, intelligent enterprise with TCS' creative hubs and collaboration with technology players, universities, and curated startup ecosystems.   Cognitive AI has received recognition and awards globally for its unique features and capabilities. 2021 IoT Global Awards: TCS Smart Store™ based on the Image and Video Analytics Toolkit won the award in the retail, marketing, and hospitality industry segment. 2022 IoT World Congress Industry Awards: TCS' Smart Store based on the Image and Video Analytics Toolkit also won the award for Best Customer B2C Solution. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to bring life to things? Theme Font size Line height
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Smarter asset management with TCS Connected Assets Services

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TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Aging assets, unplanned downtime, siloed knowledge bases, and higher maintenance spends can impede organizations in asset-intensive industries. Business operations are constantly evolving and becoming more complex. Enterprises across utilities, manufacturing, life sciences, and other industries are constantly striving for uninterrupted operations to uphold customer and stakeholder satisfaction. Global enterprises spend nearly 40% of their investment on managing physical assets across geographies. Despite this, maximizing the assets' value throughout its life cycle remains a challenge. Enterprises need to implement effective asset management techniques that align with the ISO 55000 (erstwhile PAS55) standards. Adopting asset management best practices too can help address the above challenge.   Contextualized EAM services that span the entire asset life cycle TCS Connected Assets Services take an innovative approach to EAM. The solution enables integrated asset performance management by collating EAM data (asset history, inspections) with real-time data and asset failures. It provides asset health (criticality scoring), asset risk and intervention with AI-driven predictive analytics and expert decision making. With TCS Connected Assets Services, enterprises gain a 360-degree view of their assets with qualitative decision making across the assets' defined strategy, planning, and execution stages. Following an asset maturity framework, the solution provides contextualized EAM services for the above stages of the asset life cycle. Aligned to ISO 55000, the framework categorizes an organization's asset and maintenance maturity levels and then chalks out a

roadmap accordingly. Features: EAM consulting and transformation services: Ensure alignment with customer vision and maturity across EAM and the associated ecosystem. EAM audits, compliance, and roadmap definition: Conduct ISO 55000-guided maturity assessments, share recommendations aligned with industry best practices, and define roadmaps detailing the investment needs and potential benefits. Asset performance and optimization services: Enable risk-based asset strategy optimization to enhance safety, integrity, and reliability. Field service management: Optimize work scheduling, dispatch, and field work completion through automated optimization techniques and addressing worker safety concerns. Predictive and digital twin services: Enable real-time asset health monitoring and risk scoring. Develop failure prediction models for productivity enhancement of operations and field technicians using TCS' proprietary solutions such as InTwin™, IP2™, DMP—all compatible with leading hyperscalers. Gain greater operational efficiency and continuity to unlock exponential value of enterprise assets. 15–25% reduced operational costs through optimized preventive maintenance schedules and failure prediction of critical assets. 5–10% increased asset availability and uptime. Proactive instead of reactive intervention to reduce maintenance spends. Connected workforce plus technicians with strict regulatory compliance for better agility and performance. Comprehensive environment, health, and safety measures and improved asset reliability. Improved asset strategy definitions and planning through faster data-driven decision making. With more than two decades of experience in EAM, we help enterprises transform their critical assets landscape. Dedicated EAM Center of Excellence to support end-to-end EAM transformation by bringing in cross-industry expertise across diverse domains and functional and technology areas. Product-agnostic business requirement analysis and fitment, with expertise across leading EAM platforms such as IBM Maximo Application Suite (MAS), Hexagon and Infor EAM, SAP IAM, GE APM and Meridium, Copperleaf Suite, and Salesforce Field Service. Premium partner for leading EAM product vendors, aligning solutions with product roadmaps and enhancing product functionalities to meet evolving industry needs. Business process maps for all industry segments to ensure EAM transformations are guided by industry-leading best practices rather than product-specific functionalities. Ready-to-deploy tools and solution accelerators such as TCS Transport Asset Management solution and Crystallus™. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height
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TCS IoT and Digital Engineering Advisory Services

Bringing Together IoT and Digital Engineering to Create Rich Experiences Highlights On this page Overview Solution Benefits The TCS advantage Change begins here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Build connected digital enterprises for transformed, agile, and sustainable businesses. You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are scaling digital transformation initiatives for greater business agility and seamless customer experiences. Business and operating models are evolving. Enterprises are focused on servitization, collaborative ecosystems, and sustainability to realize greater return on investments and discover new frontiers for market leadership. For this, enterprises need to build a connected digital enterprise which offers a frictionless path to value creation by deriving insights across the value chain and ecosystems. Advanced digital technologies such as IoT, cloud, AI, machine learning, robotics, augmented and virtual reality, and edge computing help accelerate the transformation journey toward building a connected digital enterprise. TCS IoT and Digital Engineering Advisory Services help build connected digital enterprises. Our services encompass the entire spectrum from envisioning to architecting the connected digital enterprise across value chains. It builds on our Bringing Life to Things framework and spans the entire value chain—design, manufacturing, operations, supply chain, and customer service—to create self-aware, predictive, and connected 'things' for enterprises. It combines physical context with digital intelligence to unlock exponential value. Our flexible engagement models offer outcomes that address enterprises' business challenges and priorities. This suite of

services allows enterprises to: Build software-defined, AI-embedded, intelligent products for markets quickly with our digital engineering expertise. Innovate and adapt in the transition from hardware to software-defined vehicles with our connected, autonomous, shared, and electric vehicle solutions. Implement a factory of the future for improved productivity, operational efficiency, and resilience from connected plants with TCS Neural Manufacturing. Power the servitization journey to create greater customer value and new revenue streams with TCS' connected products and services. Leverage the enterprise digital thread that unlocks the power of product data for increased business agility and performance. Making transformed, agile, and sustainable businesses possible with TCS' services. Enterprises that leverage TCS' IoT and Digital Engineering Advisory services can: Realize new business models: Imagine, plan, and execute business transformation through servitization. Enable greater business agility: Respond quickly to marketplace demands through flexible operations. Provide seamless customer experiences: Reduce hassles in business processes for frictionless and seamless customer experiences. Improve sustainability: Reduce emissions and energy consumption while enhancing safety and quality of life.   Partner with us and leverage our key differentiators to gain a competitive advantage. TCS' Bringing Life to Things innovation labs and partner ecosystems help harness the power of innovation to build future-ready enterprises. Our assets and accelerators enable successful pilots, minimum viable products, and scaled rollout across business functions, aligning to enterprises' transformation agenda. Our team of experienced advisors bring deep industry and domain knowledge, engineering prowess, and core technical skills to drive business transformation. Six recommendations to realize business value from industry 4.0 How IoT-led Connected Services Transform Business Models Build Value with a Sustainability by Design Approach Software-defined vehicles: Four takeaways from the aviation sector Leveraging digital threads to unlock the value of product data 21st-century neural value chains — Heralding the future of manufacturing Ready to bring life to things? Talk to our advisory partners. Theme Font size Line height

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TCS Intelligent Power Plant

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plants: The savings potential for utilities from TCS Intelligent Power Plant is $3-4 million annually per GW of energy production capacity. A partnership with TCS provides utilities with the following advantages: Software-defined products: the path to product transformation Leveraging Digital Intelligence to Build a Truly Connected Enterprise Leveraging Industrial Digital Twin for Better Business Value Ensuring the Digital Factory Delivers on its Promise Ready to secure your digital estate? Theme Font size Line height =====================

TCS Recognized as a Global Leader in Engineering R&D Services by Zinnov

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Systems, and Telematics SANTA CLARA | MUMBAI, June 22, 2021: Tata Consultancy Services (TCS) (BSE: 532540, NSE: TCS), a leading global IT services, consulting and business solutions organization, has been positioned as a Global Leader in the Zinnov Zones for Engineering R&D Services1, for the eighth consecutive year. The report recognized TCS' leadership in engineering services in industries such as aerospace, automotive industrial, medical devices, semiconductor, telecommunication, enterprise software (including platform engineering and cybersecurity), and media and entertainment (including Over the Top and Content monetization) industries. TCS was also positioned as a Global Leader in services such as digital engineering, AI engineering, advanced driver-assistance systems, telematics, digital thread and contactless retail. "Enterprises are adopting edge computing and AI at the device level to make products smarter and more connected. These intelligent technologies enable insight-based decisions at the device level, making them self-aware systems," said Regu Ayyaswamy, Global Head, IoT and Engineering and Industrial Services, TCS. "This Leadership positioning is a recognition of our ahead-of-times technology investments and ability to help customers quickly adapt to the changing business needs during the new normal." TCS offers a comprehensive portfolio of engineering services that cover the entire product lifecycle and help customers become connected digital enterprises. TCS is also continuously investing in innovation around industrial use cases leveraging digital technologies like IoT, analytics, and robotics. It combines traditional product and software engineering with digital solutions, enabling customers to transform their operations and focus on new product design, newer ways of service delivery and better customer experiences. Proprietary engineering solutions include: "TCS has consistently been recognized as a leader for global engineering R&D services by Zinnov. The firm's focus on transforming products, plants, and services through its TCS connected digital enterprise solutions approach has translated to a strong leadership positioning for digital engineering services as well. In addition to having a significant presence in manufacturing-led verticals (aerospace, automotive, industrial, etc.), the firm's penetration in hi-tech and services-led verticals such as healthcare and retail for digital engineering services poise it to garner greater wallet share in the near future," said Sidhant Rastogi, Managing Partner, Zinnov. "Our investments in Edge AI analytics, comprehensive portfolio of connected and autonomous products, deep domain knowledge across industries, expertise in product engineering and customer centric approach, make us a trusted strategic partner for enterprises in their next-gen product transformation journeys," added Regu Ayyaswamy. About Tata Consultancy Services (TCS) Tata Consultancy Services is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for over 50 years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions. This is delivered through its unique Location Independent Agile™ delivery model, recognized as a benchmark of excellence in software development. A part of the Tata group, India's largest multinational business group, TCS has over 488,000 of the world's best-trained consultants in 46 countries. The company generated consolidated revenues of US $22.2 billion in the fiscal year ended March 31, 2021, and is listed on the BSE (formerly Bombay Stock Exchange) and the NSE (National

Stock Exchange) in India. TCS' proactive stance on climate change and award-winning work with communities across the world have earned it a place in leading sustainability indices such as the MSCI Global Sustainability Index and the FTSE4Good Emerging Index. For more information, visit www.tcs.com and follow TCS news at @TCS_News. To stay up-to-date on TCS global news, follow @TCS_News. 1 Zinnov Zones 2020 for Engineering R&D Services, Sidhant Rastogi, December 2020   Australia and New Zealand Email: Kelly.ryan@tcs.com Phone: +61 422 989 682 Benelux Email: Joost.galema@tcs.com Phone: +31 615 903387 Canada Email: tia.thomas@tcs.com Phone: +1 647 790 7602 Europe Email: mattias.afgeijerstam@tcs.com Phone: +46723989188 India Email: vanshika.sood@tcs.com Phone: +91 22 67789098 Email: saxena.kritika@tcs.com Phone: +91 22 6778 9999 Middle East & Africa Email: s.hasneen@tcs.com Phone: +00971567471988 Japan Email: douglas.foote@tcs.com Phone: +81 80 2115 0989 Latin America Email: martin.karich@tcs.com Phone: +569 6170 9013 Nordics Email: roland.bagen@tcs.com Phone: +46703178024 UK Email: peter.devery@tcs.com Phone: +44 20 3155 2421 USA Email: william.thomas@tcs.com Phone: +1 203 984 3978 Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

IoT is a Powerful Path to Product Performance

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Unlocking the value of product data with digital threads

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maintenance phase. Increasing complexity: With products becoming smarter and more connected, the lines between hardware, software, and mechanical components are blurring. This complexity, combined with heterogeneous data types and formats, leads to data integrity issues and product data complexity. Data traceability: Due to process and data disconnects, tracing an accurate product configuration from engineering through service and maintenance becomes complex. This lack of visibility into key performance indicators (KPIs) across different enterprise functions hinders impact analysis, evaluation of product upgrades, and quick response to changes. Diversified data semantics and ontologies: Achieving data interoperability is challenging when there are numerous industry standards to adhere to. Ensuring data interoperability across vendor platforms becomes increasingly difficult as the number of standards grows. Fragmented IT landscape and data sources: Legacy mainframe systems have transitioned to open architecture systems and microservices-driven cloud components. However, the IT landscape remains fragmented, hindering the seamless flow of product data across the life cycle. Mergers, acquisitions, and divestitures: M&As and divestitures introduce new complexities to data processes and IT landscapes. Varying levels of data quality and ownership make it challenging to establish connected data views. A digital thread intertwines product, life cycle, functions, and ecosystem data. Products go through different states as they mature: requirements, engineering, manufacturing and delivery, and service maintenance. Throughout these states, various enterprise functions collaborate and generate product data aligned with defined process frameworks. A digital thread interconnects all these product data entities, creating an enterprise digital thread that spans key functions and the extended enterprise. This traceability of product data enables data continuity and supports various business scenarios throughout the product life cycle. A product moves through different states of maturity, from product as required and product as designed/engineered to product as manufactured/delivered and product as serviced/maintained. A digital thread interconnects all these data entities, enabling continuity throughout the product life cycle. To facilitate implementation and drive positive outcomes, enterprise digital threads should exhibit four key traits: 1. Model-based: Models represent the graphical, mathematical, or physical representation of a concept, structure, or system. High-fidelity models provide information-rich parameters, enabling integration, analysis, and simulation across different stages of the product life cycle. 2. Interoperable: A digital thread should facilitate seamless interoperability between various systems, tools, and platforms. It should support standardized data formats, protocols, and interfaces to ensure the exchange and integration of information across different domains and stakeholders. 3. Connected: The digital thread connects data, processes, and systems across the entire product life cycle, enabling end-to-end visibility and traceability. It eliminates data silos and enables real-time access to accurate and up-to-date information, fostering collaboration and informed decision making. 4. Contextual: Contextual information provides a deeper understanding of product data and its relationship to specific processes, events, or conditions. Contextualization enables stakeholders to analyze and interpret data in the right context, enhancing its value and enabling effective decision making. By embodying these characteristics, a digital thread empowers organizations to leverage the full potential of their product data, drive innovation, improve

operational efficiency, and enhance customer experiences. It creates a cohesive and integrated digital ecosystem that supports the entire product life cycle and enables organizations to adapt to evolving market demands. Digital thread implementations can yield business value while streamlining the complex processes of realizing products. By establishing seamless connectivity and data flow across the product life cycle, organizations can achieve the following outcomes: Improved time to market: Digital threads enable faster product development cycles by facilitating collaboration, reducing rework, and enabling concurrent engineering. By eliminating data silos and streamlining information exchange, organizations can accelerate product innovation and reduce time-consuming manual processes. Enhanced product quality: With comprehensive visibility into the product data across its life cycle, organizations can identify and address quality issues early on. By leveraging insights from the digital thread, they can optimize design, manufacturing, and service processes, leading to improved product quality and customer satisfaction. Increased operational efficiency: A digital thread eliminates redundant data entry and manual handovers between different departments and systems. It enables automated workflows, real-time data updates, and streamlined processes, reducing errors, minimizing delays, and improving overall operational efficiency. Effective decision making: The digital thread provides a holistic view of product information and its relationships, enabling stakeholders to make data-driven decisions. With access to accurate and up-to-date information, organizations can assess the impact of proposed changes, evaluate alternatives, and respond quickly to market demands. Enhanced customer experiences: By leveraging insights from the digital thread, organizations can better understand customer needs and preferences. They can tailor products and services to meet specific requirements, deliver personalized experiences, and establish long-lasting customer relationships.   The enterprise digital thread journey delivers functional, integration, and digital capabilities incrementally and continuously. TCS has defined a roadmap that can be tailored and synchronized with an organization's current technology plans. The main objective is to leverage ongoing and past investments made in developing capabilities to maximize business value by carefully infusing the required capabilities into the roadmap for enterprise digital thread. The roadmap focuses on four key aspects: Business scenarios: The reference roadmap is divided into four outcome-based scenarios, which cover the entire life cycle of a product from concept to a performing asset: rapid development, agile engineering, accelerated launch, and optimizing performance. Functional capabilities: The business and IT systems that manage the product lifecycle (PLM) and product data (PDM); enable multidomain product development; integrate the manufacturing process and supply chain; and integrate the asset and service life cycles. Enterprise integration: A resilient and scalable integration capability built on a service-based orchestration layer using technologies such as microservices, knowledge graph navigation, and data streaming. The more such integrations rely on industry-standard semantics for the interoperability and exchange of data, the more resilient and extensible they can be. Analytics and insights: A data aggregation and data science layer powered by AI/ML to bring intelligence to the evolution of products, track their metrics, and provide insights that are descriptive, preventive, predictive, and prescriptive in nature. As a result, insights can be made actionable, and decisions can be better informed. By following this

roadmap, organizations can embark on a structured and strategic journey towards establishing an enterprise digital thread, realizing its benefits, and driving sustainable competitive advantage in today's fast-paced and data-intensive business landscape. An infographic presenting a TCS-defined roadmap of an enterprise digital thread. It can be tailored and synchronized with an organization's current technology plans. The roadmap presents four business scenarios where digital twin and digital capabilities can be integrated -- rapid development, agile engineering, accelerated launches, and optimized performance. The capabilities needed to execute these scenarios have a PLM/PDM foundation, multi-domain development, systems engineering, manufacturing or supply chain integration, and asset or service life cycle integration.   Begin with one approach that makes sense for your company, incorporating others as you advance. Develop a business case: Clearly link the problem-solution-value statements, focusing particularly on measurements. Prioritize: Align current initiatives; in particular, augment the PLM transformation journey with the four digital thread characteristics.   Make the cultural shift from engineering to lifecycle: Shift to model-centric, enterprise connectivity, insights-driven and closed-loop actions. Add value: Deploy digital threads and digital twins together for long-term sustainability and to adapt to changing business models. And along your journey to an enterprise digital thread, aim for these mile markers: Identify digital thread scenario-based pilots. Establish governance and ownership of heterogenous data, formats and interoperability. Ensure convergence of digital thread pilots with current transformation programs. Ensure long-term governance and planning for a sustainable digital thread.   To achieve their life cycle objectives, manufacturers must blend digital capabilities with core functions. Data standards and ontologies need strong governance to achieve true data interoperability. As data cut across enterprise functions, ownership and accountability become critical to manage. Cloud-based deployments go beyond infrastructure and operational benefits and help companies achieve key business outcomes. The convergence of digital thread and digital twins yields a strong business value by achieving faster time to market, improved service excellence, and other tangible benefits. Digital Twin Technology & its Role in Accelerated Product Development Improving manufacturing process efficiency with unobtrusive sensing CIMdata applauds TCS embedded Software Lifecycle Management Services Digital twin tech for sustainable food supply chain Ready to bring life to things? Theme Font size Line height =====================

Software-defined vehicles: Four takeaways from aviation

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change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Sanjeev Madhav Krishnan Kutty Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Sanjeev Madhav Global Head, Intelligent Products: Automotive, TCS Krishnan Kutty Delivery Head, Intelligent Products: Automotive, TCS You have these already downloaded We have sent you a copy of the report to your email again.   Applying aviation's proven strategies to the development of software-defined vehicles Digital technology is transforming the way we move. Gone are the days when vehicles were merely a means of getting from one place to another. Today, automotive customers are looking for smart, sustainable, over-the-air upgradable connected vehicles that offer enhanced convenience and experiences. Over 90% of automotive innovation is now powered by software. This has led to a paradigm shift in the automotive industry, as manufacturers shift their focus from hardware-focused to software-defined vehicles.   Fortunately, the automotive industry doesn't have to travel unaided. The aviation sector—a forerunner in technology creation, adaptation, and commercialization within the transportation industry—has already navigated this journey. Despite facing challenges in transformation akin to those of SDVs, the aviation industry has maintained strong safety records. Hence, the automotive sector can gain insights by understanding how the aviation sector has adapted to these challenges.   Lesson 1: Understand that more code is not always better. Today's cars have around 100 million lines of code in their software. This number is staggering, considering that a modern commercial aircraft runs its complete avionics, control, and online support systems with less than 10 million lines of code. Despite being less expensive (0.04%) and carrying a lesser payload (0.4%) than a commercial aircraft, a car has about 10 times more lines of code. This

huge amount of code in vehicles is necessitated by the large number of car variants and user configurations, and are often related to navigation, infotainment, and comfort. As per the Society of Automotive Engineers (SAE), there are six levels of driving automation: level 0 (fully manual driving) to level 5 (fully autonomous driving). The automotive world is progressing through these levels. The number of lines of code in the software of these cars is likely to increase too, possibly to as much as 300 million by 2030. With decades of research, the aviation industry has leveraged advanced technology concepts such as service-oriented architecture to optimize the size of its software. Learning from the aviation industry, SDV manufacturers should adopt smarter ways to reduce the lines of code before they reach unmanageable levels. Lesson 2: Embrace a human-centric approach to automation deployment. Decades of innovation, design, development, testing, validation, and strict regulations have contributed to high-level automation in the aviation industry. Making autonomous SDVs, or SDVs with autonomous technologies, will be no mean feat either. During the design stage, the SDV industry should keep in mind what the aviation industry has learned about human response to automation. One significant learning involves automation bias, which is the tendency for humans to favor suggestions from automated decision-making systems while ignoring contradictory cues from non-automated systems. Pilots are trained rigorously for approximately 1,500 hours to reduce the automation bias and equip them with the skills required to handle safety incidents. Even though automobiles are more widely available and require comparatively less training, we should expect that automation in SDVs will lead to increasing automation bias. Drivers may tend to become complacent, and their driving skills may degrade over time. This could prove to be unsafe in critical situations where the vehicle gives control back to the driver. The airworthiness of every aspect of an airplane from tangible components to software undergoes robust testing. Crews operate the aircraft in meticulously controlled environments. In contrast, drivers must navigate unpredictable scenarios, such as weather, road conditions, and erratic behavior of other drivers and pedestrians. Taking a cue from aviation, SDV manufacturers might aim for full automation in controlled environments, such as on highways, on roads with good infrastructure, and on days with clear weather. However, in crowded and chaotic areas, SDVs need to work at lower levels of automation, to reduce automation bias and improve safety. Lesson 3: Emulate how the aviation industry has built-in security. As the amount of software and IoT content in automobiles increases, so too does the automotive industry become more vulnerable to cybersecurity threats. An unprotected SDV ecosystem exposes itself to vulnerabilities that could provide ways for unethical players to access, enter, or control vehicles remotely. The number of cyberattacks on cars has soared to 225% in the last three years. Fortunately, there are a few best practices that the SDV industry can adopt from the aviation world. Those include: Adopt a zero-trust approach: SDV manufacturers should design their cybersecurity systems with an underlying assumption that communication networks are inherently compromised, creating a need to focus on validation at every stage of digital interaction. Make security a priority in the design phase: The three traditional automotive design pillars are cost, quality, and schedule. SDV manufacturers should now consider security as the fourth pillar. Consider 'ethical hacking': SDV manufacturers can hire security experts or

ethical hackers to conduct penetration testing and detect vulnerabilities at an early stage before products go to market. Take an ecosystem approach: Analogous to the aviation industry, closely-knit security ecosystem partners and partnerships (including governments, cab aggregators, regulatory bodies, and certification agencies) can work together to create robust cybersecurity systems for SDVs. Lesson 4: Get ready to manage big data In aviation, data is collected from flights, fliers, third parties such as ground support in airports and aircraft control rooms, and social platforms. This data is analyzed to predict maintenance needs, improve the passenger experience, optimize route planning, maximize fleet optimization, and set effective pricing strategies. From an automotive perspective, despite an ever-increasing number of onboard sensors and devices, the quantum of data has not yet reached the levels of the aviation sector. SDV manufacturers should look holistically at the data available to them, which could include data from onboard and offboard sensors, passengers, third parties such as cab aggregators and weather reports, and social platforms. Intelligent techniques for collecting and analyzing these varied data sets is the ask of the day. As in aviation, big data analytics can be applied to the aggregated data in SDVs for a multitude of applications. Examples include: Supply chain: Efficient supply chain management could allow organizations to pick the best components in the market, increasing brand value, revenue, and profitability. Vehicle maintenance: Smart predictive analysis could improve vehicle health and reduce maintenance costs. Personalization: By incorporating weather, road, and traffic conditions, SDVs could create a customized and optimized driving experience. Seamless experience: A connected ecosystem could allow the SDVs to communicate bi-directionally with other systems to monitor vehicle health and offer enhanced safety and an enriched commuting experience. Leverage aviation's expertise to drive SDV progress The prospect of realizing a perpetually upgradable vehicle in tandem with increased levels of comfort, safety, security, and a never-seen-before user experience makes SDVs a promising proposition. It could be the automotive industry's best bet to meet ever-rising customer expectations. And fortunately for the industry, aviation has already witnessed most of the challenges it is going through now in one form or another and has managed to offer mankind one of the safest modes of transportation. By taking cues from the learnings in aviation, SDVs can set themselves up to be the future of transportation. Kautex's One-stop Automotive Software Development for Green Mobility TCS IoT and Digital Engineering Advisory Exploring deep learning and its benefits for autonomous vehicles Virtual validation for efficient autonomous driving testing Learn how we can help you apply these principles to your SDV program. Theme Font size Line height

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How IoT-led connected services transform business models

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to Create Rich Experiences Highlights On this page Connected services Ecosystem model Role of IoT Getting started Benefits About the authors Change begins here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Rejaul Karim Anuj Bansal Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Accelerate customer experience transformation and service-based business models Rejaul Karim Advisory Lead, Connected Services, TCS Anuj Bansal Solution Consultant, Connected Services, TCS You have these already downloaded We have sent you a copy of the report to your email again.   Enabling IoT-driven connected services Companies are increasingly adopting a service-based model, where customers pay for the complete solution including support services instead of just the product itself. Rather than just selling products, this service-focused approach, termed servitization, not only enables new business and engagement models but also creates new customer experiences that focus on outcomes and value. Take, for instance, the following connected services that are enabled with IoT: An aerospace original equipment manufacturer (OEM) charges for productive flying time of airlines instead of just selling aircraft engines. Major tire manufacturers are charging car fleet operators based on distance driven rather than just selling tires. An entertainment company gives visitors a special band that can be used as a hotel key, ticket, and for payments. A high-tech major focuses on providing document solutions and managing printed services than just selling copiers. Utility providers are transitioning to a low-carbon, decentralized energy value ecosystem to deliver superior customer experiences. Telecom service providers are leveraging geographic information systems to improve operational performance, enhance customer experience, and meet

regulatory requirements. Companies can collect and analyze data from IoT-enabled products, assets, and processes. This not only helps them enhance customer experiences with improved products and services, but also generates new revenue and improves efficiency of operations and maintenance. Ushering in an era where everything and everyone is becoming connected Rapid advances in 5G, IoT, artificial intelligence (AI), multi-cloud and edge computing make connected ecosystems a reality. This is leading to the characterization of products not just by their physical appearance, but also by how they can provide sustainable value, allowing businesses to differentiate their offerings accordingly and drive growth. An infographic depicting how rapid advances in 5G, IoT, AI, multi-cloud and edge computing are creating connected experiences, and these experiences will drive business growth. Evolving ecosystems will lead to connected services which in turn will drive efficient operations by bridging the physical world with the digital one, better align products with customer needs, create new revenue models thanks to business insights, and enable responsible and sustainable businesses. Although big data, analytics, and Al will underpin servitization and transformation of customer experiences, IoT-based connected services will drive this change. To embrace this change, enterprises need to leverage the connected services ecosystem model comprising of industry verticals, regulatory bodies, technology and solution providers, platform enablers, and customers. This will help enterprises benefit from the economies of scale and deliver customer-centric services through digitally integrated platforms that combine the offerings of multiple partners, and even competition. Though this might seem risky from a traditional business perspective, the gains realized through this connected ecosystem will be the determining factor for the business transformation. Taking a future-focused look at how IoT can be used for connected services across industries IoT-based connected services are disruptive and are changing the way we live and work. Not surprisingly, many industries are keen to tap into the opportunities and are investing in IoT. Utilities The industry is shifting toward renewable fuels, electrification, and distributed energy generation. Energy consumers are becoming prosumers, blurring the boundaries of traditional roles. While decarbonization led by renewable sources allows sustainable, flexible, and autonomous power generation, decentralization gives rise to heavily distributed power systems as distributed energy sources like solar and electric vehicles proliferate. Moreover, changing regulations have led to electricity wholesale markets that allow energy to be produced in one location and supplied to consumers in other locations, giving rise to competition and democratization in the energy market. Furthermore, digitalization enables real-time data on energy generation, transmission, distribution, and consumption at various points in the grid. Market, environmental, and regulatory forces have made reliable, secure, and efficient smart grids essential for utilities companies. With digital technologies, they can move to a low-carbon, decentralized energy value ecosystem and reinvent themselves for a sustainable future. Technological advances in renewable energy generation, innovation in storage systems, IoT, AI, and distributed ledgers in blockchain, combined with geographic information systems, spatial mapping, and location-based services, can speed up this energy transition. An infographic depicting how IoT is helping utility companies move to a low-carbon, decentralized energy value ecosystem. Smart utilities lead to decarbonization, digitalization,

decentralization, and democratization. These in turn enable smart grid transformation, smart services and metering, and smart consumer services powered by analytics. Transportation and logistics The demand for faster delivery of goods and services is stretching resources and increasing the complexity of supply chain management. Dynamic business situations, resource availability, regulatory requirements, and sustainability targets are challenging supply chain and logistics planning and operations. With IoT-powered cognitive technologies, organizations can proactively navigate diverse fleet and freight disruptions, while balancing costs and improving profitability. Automation of inbound and outbound logistics can optimize trips and fleet utilization and improve driver behavior. Meanwhile, inventory and workflow automation can improve asset health and reduce maintenance. An infographic depicting IoT technologies and automation can help organizations navigate diverse fleet and freight disruptions, while balancing costs and improving profitability. IoT will transform transportation and logistics from first to last mile by enabling an agile distribution network, visibility into real-time inventory, smart operations at reduced costs, and new business models and revenue streams. Retail With advanced technologies, customer transactions in retail have significantly changed over the past years. Omnichannel, enhanced customer experiences, and time-bound deliveries are reshaping the world of retail. Retailers are focused on accelerating their supply chain transformation and making their in-store experience more relevant to customers. They are also rethinking their business models to integrate brick-and-mortar stores with online operations, offering customers the best of both worlds. Retailers can adopt smart and connected technologies such as radio frequency identification, computer vision, smart cards, smart kiosks, mobile applications, automated payment, IoT, augmented, virtual, and mixed reality, beacons, and location intelligence. These can help address merchandizing, store, and supply chain requirements in their retail business. Moreover, they can leverage connected services to reimagine store operations, optimize operational costs, improve productivity, and enhance customer experiences. High tech Evolving consumer needs, regulations, and sustainability targets are pushing high-tech OEMs to be connected, collaborative, and cognitive. They also need increased visibility of their products across the value chain from sourcing to consumption and even to extension of the end of life of products with recycling. This paradigm shift in business strategies is pushing them to adopt digital, IoT, and connected technologies. It also enables servitization, creating value for customers while unlocking new revenue streams. True enough, connected products and services offer a seamless customer experience. But when combined with a customer-centric approach, it can be the differentiating factor for organizations in the market. Moreover, it can enhance customer satisfaction, foster loyalty, improve operational efficiency, and drive long-term growth. Smart cities With rapid urbanization, many countries are developing smart city strategies that enable local area development and harness next gen technologies to drive economic growth and improve public services. Smart cities not only improve the quality of life but also offer better employment opportunities for citizens through digital platforms. A suite of smart city solutions that leverage data from multiple domains, systems, and IoT devices in a common digital platform can achieve new contextual and cross-organization operational insights to minimize utilities downtime, reduce costs, and improve services. An infographic

showcasing the smart cities of the future. Data leveraged from multiple domains, systems, and IoT devices are added onto a common digital platform, thereby driving economic growth and improving public services. For cities, IoT will promote circular economies, improve public mobility, boost tourism, and enhance security, utilities, and renewable energy, thereby improving quality of life for citizens.   Healthcare We're seeing a manifold increase in healthcare services enabled by IoT. Take, for instance, those that allow patients to access remote medical assistance through smart mobile applications. In the coming years, innovations in personalized healthcare and digital surgery platforms, connected ambulances, telehealth and teleconsultation, hospital at home, medical imaging, connected medical instruments and associated analytics will play a major role. Healthcare ecosystems of the future powered by IoT connected device platforms will be patient-centric, seamlessly connecting hospitals, physicians, and patients. An infographic depicting how the healthcare ecosystems of the future will be powered by IoT connected device platforms. They will be patient-centric, seamlessly connecting hospitals, physicians, and patients.   Exploring IoT-led connected services and solutions IoT-led connected services and solutions create opportunities. They help enterprises differentiate themselves in the market, make their internal processes more efficient, and drive new value streams and business models sustainably. While connected services can bring in many transformational benefits, many businesses are still grappling with how IoT applications can reach the scale required to maximize ROI. The challenge enterprises face in adopting IoT-based connected services is not technical but mostly deals with finding business value quickly. As a part of strategy development, enterprises should first define their vision for IoT, both short-term and long-term. This means answering questions such as: What critical business problems need to be solved? For example, is it about cutting costs or growing revenue through new services and business models? How much value can be potentially gained by investing in IoT to solve those problems? How enhanced customer experience and satisfaction can be enabled by value-added services? What kind of innovative, customer-centric engagement models can be quickly enabled? To adopt IoT-driven connected services, organizations must adopt these steps: strategy and plan, connect, scale, and innovate. They must first identify the intended business problem and value proposition, then connect quickly and show value through speed. They must then focus on achieving scale through end-customer adoption and deployment, and finally they must accelerate innovation to improve customer value.   With a defined vision and strategy in place, enterprises can arrive at optimal high potential business use cases with immediate ROI that combines higher benefits with a shorter payback time. By focusing on these use cases, organizations can drive greater value from their IoT investments and secure a competitive advantage. After this, enterprises can develop a minimum viable prototype of select use cases, helping innovate and differentiate products and services. With the insights gained, enterprises can develop new products and features that can improve customer experience and strengthen relationships. Once the business value and performance are proven, the products and services can be easily and reliably scaled, leveraging IoT-enabled platform-as-a-service.   How companies can innovate with connected services for a greater competitive advantage IoT-led connected services create new opportunities and help in expanding business models for recurring revenue and sustained profitability.

It adds value at every step of the customer journey, enhancing customer experience. Moreover, greater collaboration in the connected services ecosystem increases agility, improves competitiveness, and helps seamlessly scale solutions and applications. What's more, it creates differentiated servitization opportunities, enabling organizations to reimagine how they attract, serve, and retain customers. For this, they need to create digital connected solutions supported by a future-proof reference architecture and the right technology stack, leveraging the connected services ecosystem for stability, scalability, and faster realization of business value. PostNord Revolutionizes Truck Utilization TCS Clever Energy™: Energy Management System for Better Sustainability Supply Chain Decarbonization: The Missing Link to Net-zero Reimagine Renewable Energy with Digital Intelligence Ready to secure your digital estate? Theme Font size Line height =====================

How to transform the healthcare sector with electroceuticals

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best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Overcome four key challenges in the design and development of electroceuticals to revolutionize medical treatments. Vimal Kumar Puthiyadath, PhD Consultant You have these already downloaded We have sent you a copy of the report to your email again.   Electroceuticals are poised to revolutionize the world of medical treatments. The growing need for minimally invasive procedures and rising chronic diseases is resulting in higher demand for electroceuticals. These implanted devices deliver electrical impulses that stimulate the nervous system to proactively detect and treat diseases. With minute electrodes attached to nerves, these devices can also control nerve impulses and monitor neuroactivity. Electroceuticals can address a wide range of common and complex disorders with the help of bioelectronics that target specific regions of peripheral nerves. Why do electroceuticals look promising? These devices can be used to treat many diseases—including spinal cord injuries, hypertension, heart conditions, and gastrointestinal diseases—creating a better quality of life for people. Moreover, electroceuticals can be used to monitor diseases in a way that helps improve a medical provider's understanding of diseases. This will aid in making therapy regimens even more effective.   Device-related infections, hardware or software failures, and external interferences can affect effective treatment. The human body comprises nearly 86 billion neurons and 150 trillion synapses. Manipulating groups of neurons and managing huge volumes of neural information flowing through these circuits can be really challenging. It's only through this effective mapping that electroceutical-based treatments can be effective. Electroceutical devices allow for sophisticated monitoring, diagnosis, and treatment. However, the implications if these devices were to malfunction are serious. Hardware failures such as issues with the battery, capacitor, and sealing are a leading cause of device malfunctions. Simultaneously, the software of these devices has been developing at a fast pace. Given the criticality of these devices to human lives, it is vital to ensure the software is reliable and bug-free for safe operations while also complying with regulatory requirements and standards. External sources, both within and outside the hospital environment, can interfere with the proper functioning of electroceutical devices. To overcome this challenge, it's essential to ensure electromagnetic interference compliance when designing these devices. Although the risk of hacking these devices represents a small part of security vulnerabilities, recent studies have demonstrated security attacks on electroceutical devices. Hence, companies need to leverage an appropriate cybersecurity framework when designing and developing these devices.   Take the following measures to overcome challenges in the design and development of electroceuticals. Miniaturization Electroceutical devices can be clunky and large, requiring stimulation of large areas of neural tissue to achieve the desired results. The efficacy of these devices is still determined by trial-and-error methods. What's needed is deep miniaturization of electrodes and chips that can interface with a single nerve, using technologies such as application specific integrated circuits or field programmable gate arrays. Additionally, there is a demand for wireless devices, eliminating the need for traditional batteries. Miniaturization, although a monumental task involving the shrinking of systems to micro- and nano-levels, is crucial for efficient electroceuticals. A millimeter-scale, nerve-stimulating implant that

engineers from Stanford University have developed outperforms other devices of similar size in its form factor. Interestingly, electroceuticals can be administered through a needle, eliminating the need for invasive surgery. Low-power design Developing miniaturized sensors and advanced micro-electromechanical systems is met with one significant obstacle—the limitation of power. Deep miniaturization requires smaller, smarter devices with more functionalities that, in turn, necessitate larger batteries. However, batteries have fixed energy density, limited lifetimes, and can cause chemical side effects. Furthermore, the size of the battery determines the overall size of the device. This makes the designing of such devices extremely challenging. Companies can develop battery-less devices that rely on humans or the environment for energy, although this energy alone would be insufficient for complex tasks. They can design battery-less electroceuticals that use different energy harvesting mechanisms that provide enough energy for complex tasks. For instance, they can design integrated circuits to operate in an extremely low-power mode and utilize low-voltage design techniques to complete complex tasks. Integrated electroceuticals and soft bioelectronics Combining soft bioelectronics and deep miniaturized electroceuticals enables seamless integration into curvilinear, sensitive skin, or internal organs. There's been significant progress in fabricating and characterizing soft and stretchable sensors for monitoring vital signs. However, there are different challenges and requirements in electroceuticals that need to be overcome. To succeed, designs need to integrate electronics, power sources, and suitable mechatronic materials into a small form factor. For instance, when implanting a device into the body, it must not only have the right functional properties but also exhibit mechanical properties that match those of native tissues or organs. If the material is too soft, it may succumb to wear and tear and degrade quickly. Conversely, if it is too hard, it may cause damage to the surrounding tissue. Hence, resolving this technical contradiction during design is crucial. In-silico testing of electroceuticals For assured safety and efficacy of electroceuticals, it needs to be thoroughly tested on humans. Typically, this is done in phases during clinical assessments before these devices reach the market. However, due to complex disease patterns and variability in administration of treatments, these devices may perform well in tightly controlled laboratory tests but fail during clinical trials. Moreover, extensive and intricate invitro experiments, animal testing, and subsequent clinical trials often escalate the cost of device development to unsustainable levels. This can stifle innovation and drive healthcare costs to unprecedented levels. Successful outcomes in animal testing do not guarantee the same outcomes in humans. Therefore, the elimination of animal testing is a significant aspect, underscoring the importance of in-silico testing to get things right from the outset. Instead, it would be effective to develop mathematical models of organ behavior in response to different stimuli. These models can be used to design and test optimal signals that can eliminate disorders. Scientists can collaborate on developing organ models and therapies, while also establishing connections with device and technology manufacturers. They can create cloud-based solutions that leverage machine learning and model-based algorithms and test them using in-silico, cloud-based simulations. That said, given the complex nature of the human body, researchers should work in tandem to tackle intricate challenges that electroceuticals may present along the way.

Ecosystem partnerships as the forerunner for success The design and development of electroceuticals calls for interdisciplinary collaboration among domain experts. For this, providers of medical devices, pharmaceuticals, and healthcare services must consider ecosystem partnerships. With TCS as a partner, electroceutical companies can leverage TCS' domain expertise and technological prowess, while also protecting their intellectual property and complying with stringent regulatory requirements. TCS' Bringing Life to Things™ serves as a foundational framework in the design and development of such smart and connected medical devices that leverage IoT, AI, ML, and bio-digital twin technologies. With prolonged development cycles and zero room for error, it's these collaborations that will chart the course for success for electroceutical companies. Leveraging digital threads to unlock the value of product data Blockchain for IoT to Create Trust & Accountability | TCS TCS InTwin™: AI-enabled Digital Twin for Agile and Sustainable Plants How IoT-led Connected Services Transform Business Models Ready to bring life to things? Talk to our advisory partners. Theme Font size Line height ======================

Ensuring the digital factory delivers on its promise

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every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Manufacturers have invested in technology. But how can they wrap their factories in a neural fabric? Sreenivasa Chakravarti Vice President, IoT and Digital Engineering Binu Jacob Head – IoT, Microsoft Business Unit You have these already downloaded We have sent you a copy of the report to your email again.   The promise of the digital factory—an interconnected, resilient, and hyper-responsive manufacturing center—has tantalized many industrial organizations. It has driven companies worldwide to invest heavily in AI, cloud, robotics, haptics, the internet of things (IoT), and digitalization. Such technologies could constitute a neural fabric that guides managers from design through production and even into service-based models of finished goods. But achieving this vision has proven elusive. While digital investments have had positive impacts, they have not produced the transformation many had hoped for or expected. Even after investing in advanced technologies, manufacturers routinely struggle to respond to supply chain crises or rapid shifts in consumer demand. Organizations have heterogeneous and often mismatched legacy information technology and manufacturing systems that they have built or acquired over the years. Many digital investments remain siloed in innovation-focused teams or stuck in what's known as 'pilot purgatory'—lacking the scale and integration necessary to deliver meaningful or systemic results. And even when technologies show promise, the nature of corporate governance and decision rights in manufacturing organizations means that individual factories can—and do—resist the full adoption of these technologies. Losses due to unplanned downtime, assembly changeovers, and supply chain shortages continue to hinder organizations. There is still very little visibility across the entire value chain of a manufacturing organization. This leaves suppliers, customers, field services, and others unable to exchange critical information that could drive better productivity, more responsive production, and more profitable outcomes. The above problems can be addressed by a digitalization strategy that embraces what we call 'neural manufacturing'—where the manufacturing function resembles a highly integrated, connected, sensitive, and responsive system of sensors, feelers, deciders, responders, actuators, and analytical actors. This is not merely about automation or more investments. It's about visioning a fundamentally new approach to reimagine digital integration in manufacturing and drive an autonomous self-aware ecosystem. Neural manufacturing isn't merely automation—it's a fundamentally new approach to driving a self-aware ecosystem.   But this end state is not easy to achieve. It requires a fresh approach to driving strategy, key milestones and project timelines, determining decision rights and governance, and finding the right external partners. In short, the current approach to building the interconnected network of digital factories of the future will require its own type of transformation. Within manufacturing, IT leaders struggle to have a strong voice at the strategy table, leading to IT-led transformation priorities being overlooked. Innovation teams have often struggled to gain prominence within

manufacturing organizations, with some exceptions. The result? Good ideas linger due to a lack of scalability or a practical plan for wider adoption. But technology could play a far more robust role in addressing strategic challenges. A neural fabric properly built, connected, and scaled could transform existing manufacturers, and even open up new business growth opportunities. For example, a manufacturer, by embedding IoT, could create a service-based model for its products so they produce revenue over their lifespans, rather than only at the point of sale. This is facilitated by connected world of 'as designed' to 'as manufactured' and 'as in use' further enhanced by services defined by 'feature on demand' capabilities. Better data visibility and connected digital assets could help manufacturers produce reliable insights into supply chains, thus helping meet customers' environmental, social, and governance (ESG) related goals. Haptics, extended reality, and assistive robotics could help manufacturers retrain their newest workers to be as productive as the ones about to retire. These outcomes should alert a broad array of stakeholders to the opportunities on the table and move them forward in three major stages: An infographic presenting three stages manufacturers needs to take to realize their potential for digitalization. The three stages are connectivity and visibility, intelligence and analytics, and autonomy. A Microsoft study showed that roughly two-thirds of companies are still in the early stages of this journey. Less than 30% of the customers have scaled pilots in use. Most companies, if they want to achieve the vision of a digital factory, will need to build a value-based roadmap, informed by a full ecosystem of partners and stakeholders. Building a roadmap for futuristic digitalization need not involve wholesale scrapping of existing technology-based investments or abandoning prior technology priorities. Many existing technologies exist in pockets, often at different maturity levels and with varying degrees of integration in an organization. For example, while many manufacturers have implemented automation and robotics, other foundational digital investments remain undercapitalized. Therefore, the first step is to create what we call a value-based roadmap, where the goal is to create a foundation of connected operational technology assets, enterprise systems, and processes with the future in mind. Only then are use cases for a neural fabric possible. For example, with IoT, a digital factory would be able to foresee supply constraints and disruptions before they affect production, and monitor production quality after products exit the factory floor. Another example: A mature data system will help the enterprise create a digital twin for its operations, allowing it to test improvements and enhancements before moving to full deployment. This process is conducted in three critical and sequential steps: An infographic depicting a roadmap that manufacturers can adopt for futuristic digitalization. The roadmap comprises three stages – value discovery, proof of value and value maximization. For value discovery, firms must build an enterprise strategy, determine business value and criteria, conduct technical assessments, and set up leadership governance. In proof of value, organizations must build an MVP, begin integration across complex ecosystems, and evangelize across the enterprise and partner ecosystem. In value maximization, they must scale rollout across the partner ecosystem, expand capabilities and integration, and manage change. 1. Conduct rigorous business value discovery and execution. The organization should know its current technological state and future business needs. This requires consensus from

a broad range of players, all of whom are aware of potential hurdles. For example, some organizations find that technologies deployed for one purpose in one factory cannot, for technical reasons or internal resistance, be adapted to all factories or for future technologies. This kind of outcome should be avoided. Organizations need to focus on developing what we call a strong digital spine for future neural manufacturing applications. The goal should be a manufacturing enterprise that can feel, think, and act far earlier than is currently customary. To give a common example, manufacturers should aim to replace or at least augment current KPIs such as overall equipment effectiveness, quality, and wastage with measures that reflect new information from a neural fabric. With real-time, low latency connected systems and cognitive capabilities enabled by cloud, data, and AI, organizations could see problems as they emerge, and sometimes before, allowing them to solve the problems faster or prevent them altogether. Aligning the right use cases and defining its success criteria early is critical. Also vital at this point is the establishment of clear roles and responsibilities among executive and operational leaders. With strong executive sponsorship, active involvement of operational leaders, and inputs from internal and external technology advocates, the organization can readily implement an integration plan and make necessary investments and course corrections along the way. 2. Demonstrate early success and replicate for value optimization. Ideally, organizations should choose the right use cases to showcase early successes with minimum viable product (MVP), gain support from stakeholders, and address bottlenecks in processes, people, culture, and systems. These can build confidence and lead to further support within an organization, for instance, in scaling these technology wins to solve multiple problems. They should scale out to multiple sites and expand their capabilities across the enterprise. The key is to build towards bigger wins. Discrete, straightforward challenges may be easily met, but they also yield small solutions with limited applications. Our recommendation: Don't settle for solving small or narrow problems. Aim to solve multiple problems, with increasing complexity and scale. 3. Maximize value with the right partner ecosystem. No one can weave a neural fabric on their own. Manufacturers will need to partner with providers and advisors who can deliver and scale up the technologies essential to neural manufacturing. Additionally, manufacturers should seek out providers and advisors who have a deep understanding of the complexities and differences of various manufacturing sub-categories and customer types. Ultimately, enterprises should select a partner who can not only solve a specific technological challenge, but also has the vision to deploy technology in an entirely new and transformational way.   Here's a look at how some of the world's leading companies are creating greater business value with neural fabric. Tata Chemicals Limited (TCL), the world's third-largest producer of soda ash and the sixth-largest producer of sodium bicarbonate, built and deployed a neural fabric. It comprised 32,000 sensors implanted in TCL's plants and allowed for the creation of a digital twin of its operations. We worked with TCL to implement various efficiencies and reduce operational costs that mitigated pricing pressure felt by the chemical major. Johnson & Johnson, one of the world's biggest healthcare companies, created a digital twin of three of its autoclave systems to help it predict the need for maintenance. Autoclaves are an essential part of biotechnology production systems in the treatment of various diseases. A failure in one of their many parts and any

related downtime to repair constitute a major risk. The digital twin, using several years of data on autoclave operations, subsequently allowed the company to predict maintenance needs and set schedules efficiently. This resulted in major improvements in capacity. Mercedes-Benz, one of the world's largest automakers, has steadily turned to digitalization to create a far more seamless and high-quality production cycle. The company has moved to multiple interactive digital platforms for design, production, and ongoing relationships with customers. These efforts constitute a neural fabric that can inform production at every stage and lead to significant efficiencies. The company was able to design, develop, and build the concept IAA (intelligent aerodynamic automobile) entirely digitally. Agile factories that can adapt quickly to current trends are essential for achieving neural manufacturing. Integral to such factories are highly interconnected and sensing technologies that allow them to achieve higher production, lower costs, increased workforce productivity, and market leadership positions. To make agile factories a reality, innovative solutions are needed to improve visibility across ecosystems, make autonomous decisions, and enhance enterprise efficiency through cognitive and AI-powered operations. Enterprises that embrace technological changes will stay ahead in this fast-changing world. By following a value-driven approach, securing executive buy-in, building the right partner ecosystem, and implementing a scalable platform, enterprises can achieve their digital factory goals. It's time to think big, start small, and learn fast to stay relevant. Neural Manufacturing™ Building the neural future Smart Manufacturing: Enabling the Factory of the Future Smart Factories: Improving Asset Efficiency and Quality Talk to our experts about how to transform your manufacturing processes. Theme Font size Line height =====================

Build value with a sustainability by design approach

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businesses to achieve full traceability for their supply chains. 3. Substantiating their economic impact Businesses want to influence public perception by highlighting their environmental and social stewardship. They struggle to balance the cost of designing sustainable products with price points that a volatile market will support.   Embedding four core principles for sustainability Based on the three impact elements in the previous section, we propose that businesses embed four core sustainability principles into their design. These foundational blocks will help them bring life to sustainable ecosystems. 1. Connected plants fueled by renewable power To stay relevant and competitive, businesses must invest in research and technologies that catalyze the transition of their manufacturing facilities to renewable energy. For example, enterprises in the oil and gas sector are exploring carbon capture, use, and storage, flare-gas recovery, and gas-turbine process optimization. In power and utilities, enterprises are transitioning to solar, wind, and nuclear energy. Manufacturing giants are working toward 100% renewable energy. For example, global personal care products giant Unilever sources 86% of its electricity from renewables. They are working toward switching to 100% renewable energy by 2030, in addition to investing in hydrogen technology and heat pumps. 2. Connected services driven by responsible practices Responsible business practices are built on empathy and inclusivity and address uneven growth. By strategically connecting their services to a community's well-being, businesses can create market differentiation. For example, the 'Compass' strategy from Unilever emphasizes that a business will not prosper without a healthy planet and society. The strategy further reports that empowering and supporting small-scale farmers can increase crop yield by 79% and generate eight times more jobs than large-scale mechanized farms. Meanwhile, food and apparel companies are looking for technological breakthroughs that can help them validate their responsible sourcing strategies. Traceability is to ensure deforestation-free sourcing, optimizing distribution and logistics, increasing recyclable packaging, and tracking end-of-life management all must be addressed together to create responsible supply chains. Further, power utilities and grids are leveraging technological advances in edge devices for real-time metering of assets to design distributed energy resource management system that can allow for better real-time communication and control of energy networks. 3. Intelligent products embedded with regenerative materials To be profitable in the long term, companies should adopt circular business models to replenish natural resources and recycle materials used to create products. Re-engineering of products for resource efficiency and ensuring supply chain sustainability are of prime importance. Consider these examples: Automated disassembly innovation in high-tech and 'design-for-deconstruction' techniques in building construction adopt an emerging approach called 'active disassembly principles' that can be emulated by other industries and allow for cost-effective, non-destructive, and mass recyclability of products. The aviation industry is investing in technologies that can increase the availability of sustainable aviation fuel, which is made from renewable sources and has a lower carbon footprint than traditional hydrocarbon-based jet fuels. Manufacturers of home and personal care products, automotive products, and other equipment are designing intelligent consumer products that use regenerative materials and betting on battery electric vehicles and plug-in hybrid EVs that can be truly

sustainable, if powered by renewable electricity. Measuring, verifying, and marketing such green claims can be challenging. However, actively engaging with suppliers to transition toward regenerative practices is crucial to build greener supply chains and cut embodied carbon from supplies. 4. Digital thread to integrate resilient enterprises Imagine a transparent business landscape where stakeholders can access consistent, comparable, and reliable information for net-zero progress. Digitalization has the power to create a single source of truth that can reflect the true value of climate action for business owners, shareholders, employees, and customers. In 2021, a convention on biodiversity convened by the Union of Ethical Biotrade brought together companies from around the world to address biodiversity loss. However, successful implementation will rely on technological advances in satellite monitoring, geographic information system sensors, and distributed ledgers through blockchain. These breakthroughs can lead to more transparent supply chains, which in turn will allow us to tackle biodiversity loss and deforestation. On the consumer side, blockchain technologies and non-fungible tokens could be used to create unparalleled transparency and rewards that incentivize sustainable behavior.   Focusing on five imperatives to unlock value from sustainability Organizations that aspire to transform and unlock value from sustainability need to invest in five business imperatives. 1. Design a sustainability strategy and operating model Businesses must catch up at an unprecedented pace and scale by powering their growth engines alongside their sustainability ambitions. To be both profitable and responsible, they need a robust strategy that harnesses the benefits of ESG investing and green finance. They must also design an operating model that helps them to collaborate across the new 21st century value chain to meet the goals within their business landscape. For example, this operating model might provide a way to create an auditable product label that helps people make purchasing decisions. 2. Prepare for regulatory requirements for disclosure Just as businesses need to respond to changes in supply and demand, they also must be prepared to face newer global and geography-specific regulations related to ESG risk management and disclosure. There are indeed many to chew on, including the EU's Carbon Border Adjustment Mechanism (CBAM), the Sustainability Disclosure Requirements (SDR) in the UK, the US-based Sustainability Accounting Standards Board (SASB), and China Securities Regulatory Commission (CSRC), to name just a few. These regulatory bodies have guidelines for climate action to control environmental degradation as well as meet consumer demands for greener goods and services. Companies need to create auditable data foundations across their supply chains to leverage ESG-focused institutional investments, which are expected to reach $33.9 trillion by 2026. Further, loss of revenue due to non-compliance to the new EU deforestation-free trade and associated reputational risks can be significant to companies importing and exporting goods derived from cattle, cocoa, coffee, oil palm, rubber, soya, wood, and their by-products.   An infographic showcasing the five business imperatives organizations need to adopt to derive value from sustainability. The five imperatives are sustainability strategy and design, supply chain resilience and decarbonization, innovation and technology adoption, net-zero operational transformation for continuous improvement, and ESG risk management and disclosure. 3. Create a plan for continuous improvement When embracing a transformative approach to net zero, managing operational changes is

critical. However, there also is an urgent need to access consistent, comparable, and reliable information for progress at all levels in the organization. Changes should be accompanied by tangible outcomes that can be easily communicated to the board, investors, and shareholders. At the same time, to sustain transformation, businesses must engage all the ecosystem players. 4. Factor in supply chain resilience and decarbonization Often companies that get useful ESG information from their global supply chain find it tough to act on such information. Supplier data sits outside the company's direct control, but it is not necessarily outside its sphere of influence. Even with transparent communication about supply-chain emission-reduction targets and a stringent supplier code of conduct, the quality of a company's Scope 3 greenhouse gas emissions inventory is dependent on supplier integrity. Many times, smaller and mid-sized suppliers need to be educated about the ramifications of their decarbonization initiatives on their buyer's net-zero vision. If emission-reduction targets cannot be included in contracts, businesses can still collaborate with suppliers by sharing best practices about responsible sourcing, packaging, and distribution. 5. Invest in innovation and technology adoption To scale smarter, companies need to integrate their physical systems, virtual systems, and value-chain data fabric to respond to disclosure pressures from regulators, financial institutions, and consumers. An innovation mindset has opened many new growth avenues toward non-hydrocarbon-based business models. Although shifting investments to cleaner technology is a welcome change, continuous validation is also required to establish how clean these 'cleaner' technologies really are. For example, the carbon captured through carbon-capture and storage methods needs to be repurposed for cleaner end-applications. In fact, pursuing environment-friendly end-of-life disposal for solar electricity panels can open up opportunities for innovation. Identifying your company's current status and what to do next Given this complexity, where can businesses get started? To help companies reflect on their current status and traverse the complex journey, we've identified three waves of engagement with sustainability by design. To identify these waves, we analyzed the top 100 companies globally that have high revenues in the UK and Ireland, Europe, and Americas. An infographic presenting how businesses can get started on their sustainable by design journey by adopting three waves of engagement. Wave 1 is sustainability within the enterprise ecosystem, wave 2 is sustainability across the supply chain ecosystem, and wave 3 is sustainability for consumer choices in social ecosystems. These waves were identified by analyzing the top 100 global companies with high revenues in the UK, Ireland, Americas, and Europe. A significant number of these companies (40% in the UK and Ireland, 49% in Europe, and 60% in the Americas) are still in the first wave of the sustainability transformation journey. They aspire to become net-zero but find it extremely challenging to unlock cognition and intelligence from their globally spread diverse data points. Leveraging external partners early in the first wave can help organize data faster. The second wave—to achieve transparency and visibility—seems to be the weakest link in the journey. Only 10% of the companies we analyzed have reached this stage. Verifiable data evidence can be achieved through a service model augmented by using cutting-edge technology, such as IoT edge sensors and blockchain, to trace even the most complex supply chains. The third wave is aimed to gain long-lasting trust

and viability by creating multi-industry cross-sectoral brands that enable sustainable living for end-consumers. Barely 5% of the companies we analyzed have made it to this advanced stage to become leading drivers of change in the value chain. They have overcome engineering and design challenges through active collaboration with the extended ecosystem to meet circular economy imperatives. For example, 'Fashion for Good' brand partners Adidas, Inditex, Target, and Zalando have joined hands to validate and scale up innovative technology solutions for recycling—a much-needed collaborative leap toward circular designs. New technologies can bring new sustainability challenges. However, by applying this design approach, we can allow dynamic modeling of new supply chain scenarios. For example, demand for rare earth elements like lithium can be tracked using advanced AI/ML techniques that measure the impact of rapidly scaling battery solutions in different mining geographies. By adopting our cognitive approach to embrace sustainability by design, together we can create a flexible model for a smart, resilient enterprise that delivers long-term value. Supply Chain Decarbonization: The Missing Link to Net-zero TCS IoT and Digital Engineering Advisory TCS Clever Energy™: Energy Management System for Better Sustainability 21st-century neural value chains — Heralding the future of manufacturing Talk to our experts about how your organization can benefit from sustainability by design. Theme Font size Line height =====================

Why the power sector needs faster digital transformation

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and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. With our four-step approach, companies can get the full benefits of digitalization and power their green energy transition. Alakh Kumar Srivastava Global product manager, IoT and Digital Engineering, TCS Rahul Saha Chief data scientist, IOT and Digital Engineering, TCS You have these already downloaded We have sent you a copy of the report to your email again.   The power generation business is changing fast as it addresses the unprecedented challenge of a global economy transitioning from fossil fuels to carbon-free alternatives. Power companies that are most agile—especially those willing to transform their information technology (IT) and operations technology (OT)—will be better at navigating this change and tapping opportunities along the way. This is an industry dominated by mature companies with long-lived assets and legacy systems. Some of them are still relying on outdated data management systems and siloed OT tools. There is a tendency among them to address specific data needs in isolation— acquiring a solution to improve the gross heat rate for specific coal-fired unit, for example. We also too often see companies that simply don't have the data they need, in a form they can access and use, to solve important business challenges ranging from optimization of equipment to effective planning of preventive maintenance.   The lack of accessible data results in missed opportunities for efficiency. True digitalization demands that discrete IT and OT issues be addressed with a bigger data landscape in mind, rather than with siloed solutions. Management should be thinking about a longer timeframe and how multiple solutions can work together in a modern data platform and architecture to enable data-driven decision making.   Power generation companies that lag in data transformation will face higher technology costs and increased labor requirements in the long run. To be sure, some companies have moved to cloud computing for certain purposes, while others may be testing or learning about new AI tools. But few have created a fully integrated digital ecosystem that can provide effective centralized management of their IT and OT requirements.   Power companies cannot manage their data as they have in the past. A robust centrally managed architecture becomes vital to harmonize data from diverse sources.   As power companies build their renewables portfolios, their data management and analysis requirements expand and change fundamentally. Gas- or coal-fired power plants are highly centralized, with everything in one location to produce hundreds of megawatts of power. Renewables are distributed. A solar power facility might cover hundreds or thousands of acres, and a collection of wind turbines may spread across an even larger landscape. Support for renewable generation infrastructure, including management offices, data centers, maintenance personnel and

equipment, may be many miles distant. This has significant implications on a power company's digital needs. The dramatic increase in data generation and data needs is one example. While the number of sensors in a large fossil power facility may be in thousands, wind and solar farms are estimated to generate 60 times more data than anything a traditional power plant might produce. Renewables produce granular information about their environment, their power output, and their level of efficiency. For instance, the data produced on cloud for a solar installation is vast as it covers wind strength variation moment by moment across hundreds of wind turbines, among others. Renewables produce big data. The management of big data that comes from renewable power installations demands a different strategy than power companies are used to. The data from vast, distributed energy sources needs to be brought into a centrally managed data platform. That's the challenge. Power companies cannot manage their data as they have in the past. A robust centrally managed architecture becomes vital to harmonize data from diverse sources. The image shows a standardized data architecture for power companies. Leveraging IT and OT solutions powered by AI, business analytics, cloud, and distributed computing, it provides scalability, security, reliability, and data support needed to adapt to changes. The image shows a standardized data architecture for power companies. Leveraging IT and OT solutions powered by AI, business analytics, cloud, and distributed computing, it provides scalability, security, reliability, and data support needed to adapt to changes. Even the management of existing fossil fuel plants may demand new thinking in the current era. Consider how the addition of renewables, whose output varies with the sun and the wind, might put new demands on older plants to ramp their generation units up and down more frequently. This not only creates dispatching challenges, but also changes the operational profile, putting a premium on data that can help operators understand how new operating patterns affect efficiency or maintenance. What can power companies do to meet these challenges? We recommend a four-step approach to fast-tracking digitalization using the power of AI, cloud, analytics and edge, to give companies the digital advantage they need to improve existing fossil fuel assets and fully integrate renewable energy ones. It leverages IT and OT solutions to help create a standardized data architecture with the scalability, security, reliability, and data support needed to adapt to the changes that are sweeping through the industry. It's as simple as ABCD. Step A is for artificial intelligence. In power generation, a range of problems that might have been time-consuming or difficult in the past can now be addressed with AI tools. For example, optimization of an aging coal-fired power unit—including reductions in emissions, improvement in auxiliary power consumption, reduction in maintenance costs, and improved safety—becomes easier with AI solutions. In fact, some new tasks related to the rapid growth of renewables can only be tackled efficiently with the application of advanced AI and machine learning (ML) pattern recognition technology. Use cases for AI and ML may include analysis of dust deposition on a field of solar panels to help set maintenance and cleaning schedules. Or AI could be deployed to recognize and make sense of cracking patterns in the paint on wind turbine blades seen in video captured by a drone used to inspect a large wind farm. Step B is for business analytics. AI and other data analysis and management tools are becoming increasingly important for power companies to keep costs in check, ensure reliability, and remain competitive. These capabilities must be

available in a way that ensures they add value for the enterprise. Data solutions that support improved decision making and promise the greatest potential business benefit must be given top priority. Power producers are investing heavily in setting up infrastructure for power generation units, but a coordinated and centrally managed data architecture is equally important and inevitable. It is a must to make data-led insights readily available and in a consumable format for key stakeholders. Robust business analytics can help to ensure that these are sustainable investments that will provide the return on investment that management expects and demands. Step C is for cloud. Because renewable resources such as solar and wind are likely to be distributed across a wide area, the data they produce needs to be collected somewhere. Using an on-premises data center at a central location might have made sense for a power plant in the past, but for management of data from renewables, the nature of the task clearly points to the value of the cloud. Cloud-based data tools are the best option to collect, store, and analyze the output from sensors, digital images from drones, data on environmental conditions, and more. The standardization that cloud architecture enforces will benefit the organization in many ways, helping to make all of the data more readily available for business analysis needs, for example, or making security audits easier.   What's more, cloud provides variable computing resources in an efficient manner, including the compute power needed to bring new AI capabilities into play. This is particularly important for any company with a renewables portfolio, which will have intensive data needs at times and few computing resource demands at other times. Step D is for distributed computing. For the intensive big data analysis tasks of a renewables portfolio, companies need a data platform with distributed computing capabilities. Distributed computing on cloud can provide the raw processing power needed to manage, for example, millisecond-level output data coming from multiple wind turbines. It can also provide scalability, fault tolerance to smooth over network or hardware issues, data replication, and data communication and synchronization abilities. Our work with some of the world's largest power companies have shown us how early movers have energized their business and made them more sustainable.   Powering ahead with technology One of the largest power generation companies in Japan, a country where emission of pollutants is tightly controlled, leveraged an AI-infused intelligent power plant solution to optimize and transform the operations of its fossil-fuel power plants. After the success of what started off as an initiative for one of its coal-fired units, the company is now scaling the program to other units. The initial work involved the creation of an AI-based predictive model for a 1,000-megawatt coal-fired unit, tapping massive amounts of historical power plant operating data, and using that data to generate recommendations for operational changes or new set points for fuel and air parameters to minimize emissions and maximize fuel efficiency. Once implemented, the new set points helped the company realize benefits including an 8 percent reduction in nitrogen oxides emissions and a 1.6 percent reduction in unburned carbon.   Another example is that of a utility company in the United States. It sought a data transformation that would support the company as it shifts the portfolio from fossil fuels to renewables, retiring its coal plants by 2028 and adding wind and solar. For the renewable assets, which are widely distributed and generally untended, it adopted a data platform for centralized monitoring. The solution allowed peak asset

performance monitoring, integrated with grid demand management functions. The platform became a source of truth with fleet data history for the wind turbines and solar generation at a central location on the cloud. The company could enhance the comfort of users, increase energy efficiency, and reduce the environmental impact. In another example, as part of its energy transition initiatives, a leading power generation company in Australia has successfully evaluated the potential of AI and digital twin to improve the way key gas turbine components work and address the challenges of flexible operations. They have formulated a roadmap to scale structured technology adoption over the next three years.   The energy transition calls for a reset at many ends. It is nearly impossible for a human being to physically manage offshore wind farms or solar power plants in the deep deserts. In such extreme conditions, a robust communication system is a must for real-time insights. Then, there are geo-political constraints that create an economic impact on business operations. Advanced AI-based digital twins developed for monitoring and managing different kinds of assets distributed demographically can help deal with such uncertainties. Companies must realize that investing in sustainability today could become a competitive advantage in the future. They must embrace technologies such as AI, business analytics, cloud, and distributed computing today to accelerate their move to net zero and get to a brighter, more sustainable future faster. Supply Chain Decarbonization: The Missing Link to Net-zero TCS IoT and Digital Engineering Advisory TCS Intelligent Power Plant: Improving Asset Performance Build Value with a Sustainability by Design Approach Learn how your enterprise can fast-track energy transition Theme Font size Line height =====================

Transforming business with software-defined products

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products.   What we have seen is that enterprises that define themselves as software product companies have realized better market reach compared to traditional enterprises with products centered around hardware. What's also driving the shift to software-defined products are factors such as the following: New revenue generating models like servitization need new frameworks that allow dynamic updates. These would also require product specifications to be agile. With industries shifting to everything as a service, multiple business stakeholders are simultaneously using products that are agile and support multitenancy. Supply chains are becoming increasingly challenging with businesses handling huge bills of materials. Large hardware-defined portfolios are also becoming very complex, hence there is a need to reduce custom hardware development. As businesses expand into new market areas, they are under pressure to reduce time to market. Software enablement extended to products is becoming an imperative as industries increasingly take the software-defined approach, for instance, software-defined networks, software-defined automation, software-defined grids, software as a medical device, and so on. Adopting SDPs can help companies standardize and harmonize technologies they use and reduce their software bill of materials.   Original equipment manufacturers (OEMs) can potentially transform themselves into software businesses by expanding the software-defined products in their portfolios. Doing so can help them build core intellectual property (IP), solutions, and remote R&D capabilities, which reduce dependency on manufacturing units and the need for investments in building complex test infrastructure and skilled teams. The agility brought by SDPs also help enterprises to speed up product releases sometimes simultaneously across markets globally, monetize the investments made, venture into adjacent markets, and drive additional revenues from associated services. SDPs enable easier post-market support through digital channels as opposed to relying more on-field support. Businesses can build and leverage digital supply chains and offload their hardware supply chain responsibilities to commodity hardware manufacturers that can perform the heavy lifting. This will bring in more cost efficiency, while helping enterprises focus more on end-user experiences. We explore the SDP play across a few industries and how best companies can take the SDP route to drive business value. Before that, let's look at some of the quick wins enabled by SDPs.   New functionalities for products New functionality releases can be done simultaneously across markets globally. As machine learning can be enabled easily with SDPs, products can learn autonomously and adapt to the environments whenever and wherever they are deployed. Better customer experience Product companies can connect directly to their end users without relying on their traditional supply channels of distributors, channels, and system integrators. With connectivity as a key theme, SDPs help provide "out of the box" connected experience to end users just like how today's mobile phone users are able to directly get started with their phones with very limited support, thanks to enhanced user interface, improved connectivity, and the software backbone the phone manufacturers provide. Create additional revenue streams SDPs enable OEMs to play a part in the after-market service revenue streams. They also help in substantially reducing the software bill of materials as they are optimized for modern architectures that allow very efficient product development.   Industries such as automation and control, life sciences and medical devices, and communications are taking the lead in

adopting software-defined approaches. Software defined automation in the automation and control industry With the evolution of digital factories, integrating digital technologies like edge clouds, mobile apps, 5G networks, and AI with plant software and control systems has become more critical than ever. However, challenges of system software configurability, system scalability, and system upgrades remain. Traditional plant and process controls are layered architectures organized into layers L0 to L4, and supplied by a plethora of vendors and range of customized products. Transforming sensors, input and output devices, and control systems as software-defined products will introduce configurability and scalability at L0 and L1 levels, and allow L2 and L3 functions to modernize through edge cloud-enabled digital transformation. Broadly, the SDP transformation breaks ISA95- defined four levels of transformation into two levels L1 and L4, which are connected to each other through next-gen communication technologies like 5G. ISA95 is the International Society of Automation standard for developing an automated interface between enterprise and control systems. When an industrial automation company sought to attain flexibility and scalability of its products by migrating custom high-cost hardware to a cluster of low cost, commercial off-the-shelf devices, it took the software-defined approach. Following a defined architecture and a series of proof of concepts (POCs), the company could develop software-centric products that helped it achieve increased uptime and distributed application processing while overcoming stringent control loop timing constraints. This enabled the company to scale its products, protect its investments in software and algorithms, and lower product life cycle costs for end users. Software-defined solutions in the life sciences and medical devices industry The life sciences and medical devices industry is at the cusp of a large-scale product transformation journey, triggered by several global factors such as technological advancement, internet of medical things, miniaturization, personalization, AI-driven data analytics, and remote diagnosis. With the growing focus on patient centricity, software-defined solutions for life sciences and medical devices industries particularly software as a medical device (SaMD) can be explored. These solutions can generate accurate clinical data that can be made readily available for the development of safe and effective healthcare solutions. They can also help in remote monitoring and appropriate healthcare delivery for aged, disabled, and needy patients. In fact, advanced SaMD and healthcare software solutions are already democratizing clinical and health data and reducing the healthcare burden on payers. For instance, through a smart device that can accurately monitor the pressure to be applied during a therapeutic treatment being provided to support faster recovery, a medtech company enabled healthcare professionals and patients to measure the required pressure and take decisions to manoeuvre the pressure based on the data generated. The same device also enable patients to share treatment information with their physicians via smartphone applications. The innovation is helping increase confidence, trust, and reliability between patients and health experts. Software-defined network (SDN) in the communications industry Though evolving ecosystems powered by 5G, AI, cloud, IoT, and edge technologies offer OEMs and communication service providers (CSPs) many opportunities, there are challenges in effectively leveraging these technologies for business growth. Software-defined solutions for the industry can be explored through software-defined network (SDN)

architectures. These can improve network efficiency and agility by deploying software-based network functionality along with a software-based network management layer on top of a networking platform. They allow organizations to govern massive amounts of data and network traffic in a flexible and cost-efficient way. The architectures are designed in such a way that they have programmable networking devices managed centrally through open API-based software applications. Take the case of a network equipment manufacturer that was looking to accelerate the time to market for their leading SDN product line cost-effectively. Working with a partner, it was able to revamp the SDN product end to end with new feature development, regression and automation. The company was able to achieve reduced time to market as well sustain and scale its SDN product line at an optimized cost.   Product companies must build SDPs into their product lines and make them part of their transformation strategies. SDPs can support organizations in effectively managing product design, development, operations, maintenance, repairs, and upgrades throughout the life cycles of the products. Beyond cost savings and improved productivity, they help build a foundation for elasticity and enable simplified ways for companies to deliver products and services. They can be a game-changer—whether the plan is to extend existing products, upgrade them to meet changing market requirements, accelerate innovation, scale, or personalize user experiences. As companies strive to overcome growing supply chain complexities, adopt dynamic business models, and tap new revenue streams with servitization, product companies must adopt SDPs early on, build them into their product lines, and make them part of their transformation strategies. Adopting the right technologies and the right mix of talent plays a crucial role in driving value from SDPs. Enterprises that are looking to lead the software defined future would do well to team up with partners with deep product engineering expertise and the experience to help them navigate the softwarization journey. Traverse the Journey to Smart and Connected Products with TCS TCS Launches New Solution on RDK for Media and Communication Service Providers to Create Rich Connected Consumer Experiences TCS Rated #1 Engineering Services Provider of the Year by Everest Group TCS Named a Leader in Digital Product Engineering Services by Everest Group Theme Font size Line height
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Driving business value with industrial digital twins

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predictive maintenance schedules to reduce downtime or testing load scenarios for higher efficiency. Standard equipment monitoring involves operators reacting to preset threshold alerts or taking regular preventive actions. An asset twin, by contrast, collects and analyzes a history of sensor data combined with operating conditions to analyze patterns and understand the behavior in real time. It helps detect anomalies at an early stage, giving operators time to plan maintenance and prevent failures. Industrial process twins are used to optimize any continuous and batch production process of chemicals, plastics, paints, fuels, rubber, metals, cement, and other industrial materials. A process twin is meant to ensure that a process runs as near as possible to the original design specifications. It also provides a way to optimize the process through proactive control of variables that affect the outcome. The twin may be helpful in testing process improvements to save energy, increase yield, reduce byproducts, or curb pollution. One example is that of an industry leading steelmaker that sought to improve the efficiency of its sintering facility where iron ore fines are agglomerated by heat and output sinters are fed to the blast furnace as a key raw material. Variation in raw material quality can affect steel quality, which can only be known post time-consuming laboratory testing. The energy consumption of the sintering plant was also significant. By implementing a virtual sinter twin, a real-time, physics-based quality prediction at regular intervals was made possible, allowing for control of process parameters to adjust product quality, and energy use. The result? A 5% productivity improvement and a 2% fuel savings. Another example is the use of a digital twin by a chemical company to gain visibility into the conversion efficiency of its carbonation process, which is critical for soda ash production. Variation in temperature and other control parameters affect the conversion efficiency. Traditionally, the efficiency is measured every four hours, but since the results do not provide insights that help better understand the process parameters to control outcomes, improving efficiency was difficult. With the process twin, the company could monitor conversion efficiency on an hourly basis. It could also gain better understanding of control parameters affecting conversion efficiency and get actionable set point advisories. Yields were stabilized near the hypothetical maximum, providing ongoing cost savings. The third category of industrial digital twin—a factory digital twin—is aimed at understanding whether an entire facility or production line is operating at optimal efficiency, in terms of the resources used, energy used, and desired output. It is prevalent in certain industries where digital twin factory simulation tools are helpful to arrive at the best possible design for optimum throughput. A factory twin makes it possible to adjust parameters such as product mix, try out new scenarios, and even visualize results in a virtual environment. However, daunted by the complexities of developing factory twins, relatively few companies in the process industry have so far developed factory digital twins. Digital twin adoption faces multiple challenges including the lack of sensors, good quality historical data, and necessary contextual information. While new machinery mostly have sensors, most legacy processes and equipment lack the sensors to capture comprehensive information that can help understand their overall behavior. Historical data sets, which may come from a company's systems or from more adjacent distributed (and often siloed) sources, are vital for the machine learning and AI algorithms at the heart of any twin. Enough information about the past (data for a

minimum of six to eight months) are needed to understand patterns that enable future behavior predictions. Contextual information, describing both running environment and load conditions, are also key to accurately model an asset or system. To make a digital twin work, an organization first needs a certain minimum level of digital maturity. A scalable and flexible architecture to respond to information requests and data challenges is also a must. Equally, the organization needs the change management skills to be able to act on the insights the twin ultimately provides. If the twin can provide information that help reduce energy consumption and improve quality in the production of cement, for example, that information must be translated into operational instructions that are performed consistently. But more often than not, companies lack the subject matter expertise to interpret the process and tweak the models as required, and are overwhelmed by the sheer complexity of the information models of full-scale assets or operations.   We recommend a 4C-led approach to derive actionable insights from digital twins. At their core, industrial digital twins offer the promise of improved performance and efficiency for a range of factory assets and processes, reduced costs, and higher revenues with greater yields. But it is also worth contemplating how digital twins can solve a broader range of business challenges.   For instance, with better insights and advisories from twins, operations can become more adaptable, allowing for adjustments based on demand or raw material costs. Product quality can be improved. Waste can be managed better and reduced, while emissions can be cut as machines and processes will run more efficiently. Wear and tear on equipment can be managed better, and unexpected downtime reduced. What's more, with better tools to recognize normal versus abnormal operating conditions, accidents and hazards can be avoided and safety at a facility improved. To draw relevant, actionable insights from an industrial digital twin, we recommend a 4C-led approach: Connect– Connectivity is the starting point for any digital twin; it is core to the free flow of real-time data required to model and monitor equipment and processes. Companies need to work on real-time connectivity to logic controllers associated with a piece of equipment or the supervisory control and data acquisition (SCADA) system in a plant. Collect – Collecting both real-time and historical data in a system where it can be stored safely and manipulated effectively is the next step. Often today, the most appropriate option is to collect and store data on the cloud. Collate – Collated data is key to getting the right mix of parameters to develop deeper insights into an asset or process. The data needs to be formed into a coordinated set, rather than remaining as individual data points—and not all data will be relevant. With collated data, the digital twin, through AI pattern recognition, can begin to make sense of the information. Contextualize – Data about a piece of equipment or a process won't tell the whole story until it is contextualized with information about workload conditions, failure scenarios, maintenance operations, and so on. These provide the context to make the patterns identified in the data relevant and useful.   Making digital twins an integral part of the manufacturing value chain—in product engineering, production operations, or products 'in-use'—is key. While the industry is reaping the benefits of large-scale digital investments made in the last two decades—in IoT and other technologies such as 3-D, augmented reality, virtual reality, real-time data integration, and artificial intelligence— the gestation for digital twins appears to be longer compared to the general Industry 4.0

capabilities, especially when it comes to deployment at scale. Also, many digital twin pilots do not progress to scaled deployment owing to 'pilot purgatory'. One big reason usually is the lack of a robust strategy encompassing use-case discovery, solution blueprint creation, and implementation.   Teaming up with a strategic consulting partner can help define a clear vision, draw actionable roadmap, and launch an agile implementation to achieve business outcomes quicker. For digital twin success, it is important for the twin to become an integral part of the manufacturing value chain—be it in product engineering, production operations, or products 'in-use'. Effectively, twins have to find applications in product or process development and in-field operations, either for assets, or systems of assets, or full processes. Afterall, for any technology to succeed, it needs to become part of the everyday life of a user or operator. Very often, companies take the path of 'digital twin of everything'. But creating the twin of an entire process or plant, and the time and cost that goes into completing the project could defy the potential returns of such investments. Instead, a planned progression toward this state by working on overcoming the bottleneck assets or processes and continuing to squeeze inefficiency out of the system to get to a perfect 'single piece flow' holds the answer. This requires a well-crafted vision of the end state and the technology architecture to realize that state. A composable architecture and a 'neural manufacturing' driven approach that covers all dimensions from operational assets and the data fabric to the partner ecosystem and end user roles could help bring optimal returns from digital twins. Smart Manufacturing: Enabling the Factory of the Future TCS InTwin™: AI-enabled Digital Twin for Agile and Sustainable Plants TCS Intelligent Power Plant: Improving Asset Performance Tata Chemicals Leverages Digital Twin to Boost Power Plant Operations Theme Font size Line height

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Digital intelligence: A cornerstone for a connected enterprise

Services Bringing Together IoT and Digital Engineering to Create Rich Experiences Highlights On this page Digital intelligence New value chains Maximize outcomes Path to value About the authors Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Sreenivasa Chakravarti Bhawna Puri Related reading Leading the way in innovation for over 55 years, we build greater

futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Sreenivasa Chakravarti Vice President – IoT and Digital Engineering, TCS Bhawna Puri Thought Leader – IoT and Digital Engineering, TCS You have these already downloaded We have sent you a copy of the report to your email again.   We live in an increasingly 'context-aware' environment where technologies such as AI, generative AI, and software-enabled products, from cars to appliances, are providing real-time dynamic connections and performance-enhancing responses. It's a world in which digital natives and AI-first enterprises are breaking new ground every day. Meanwhile, traditional firms are seeing the need to reimagine themselves as connected digital enterprises—organizations where systems, products, and processes can 'connect in context', become predictive, and be self-aware. Making this reinvention possible are digital capabilities powered by new technologies and real-time, data-driven insights that enable organizations to fundamentally transform their business and operating models. These changes are unfolding in the form of connected and intelligent value chains that are responsive, adaptive, and personalized—all of which helps organizations harness digital intelligence and accelerate their journey to becoming connected digital enterprises. A truly connected digital enterprise is built on digital capabilities such as intelligent and cognitive operations and cloud-enabled, large-scale industrial automation. Technologies such as edge-to-cloud connectivity, industrial analytics, AI, generative AI, edge AI, computer vision, the industrial metaverse, and robotics also play a key role. Together, these have the potential to transform the enterprise value chain by making them: Intelligent products, connected plants, connected services, and digital threads that bind them together across the value chain are critical levers in becoming a connected digital enterprise.   The traditional value chain envisages a flow from tiered suppliers to end customers. However, digital value chains are built around ecosystems enabled by digital platforms that can make contextual connections. To become a connected digital enterprise with an ability to drive perpetual value, companies need to invest in digital capabilities that enable them to connect and collaborate across the value chain and keep pace with evolving market demands. A transformed enterprise value chain enables companies to manage the full life cycle of their products by establishing traceability from the as-designed

to as-manufactured, as-in use, and as-serviced stages. We believe in a four-step approach for reimagining the value chain and enabling connected digital enterprises: Step 1: Bringing life to products. Traditional or hardware-centric product development techniques, which once yielded profitable results, are no longer sufficient for manufacturers across industries to stay competitive and drive growth. Manufacturers need to embrace products with built-in digital intelligence that can sense and derive contextual information from their environment for improved data processing and self-decision making. One example is the use of smart batteries in electric vehicles, bio-medical devices, or smart meters. Unlike a traditional battery, a smart battery can alert a user about device information like remaining charging time, current voltage levels, or health parameters. Digital intelligence built into the battery can predict anomalies in performance, share relevant information to the user, and support informed decision making. While manufacturers mostly lose direct access to traditional products once a purchase is complete, the data captured and shared by smart, intelligent products can help in monitoring, controlling, or optimizing performance on the go. It can also support advanced product releases in the future, thus setting the stage for predictive and self-aware products. Bringing life to products is a foundational step, enabling organizations to create innovative products and realize new service-based models for customers. Step 2: Bringing life to plants that can think, feel, and act. Intelligent products also need to be manufactured on demand as per personalized configurations. This requires smart and connected plants that can respond with agility to dynamic markets, supply chain signals, and personalized product configurations, while delivering the most optimal production runs in terms of cost and schedules. These plants should possess strong digital intelligence across production assets and have a neural fabric that binds assets together. This will allow for an easy exchange of information across different systems, processes, and entities across the value chain and inform decision making at every stage. A battery manufacturing plant built with 'neural capabilities' across its production process can, for instance, optimize throughput and outcomes by leveraging digital simulation techniques or insights gained from asset, product, or process twin data. Plants equipped with connected, cognitive, and collaborative capabilities operating in ecosystem-centric and circular value chains, along with self-diagnostic and self-healing capabilities, can help make operations autonomous and sustainable. Step 3: Bringing life to connected service ecosystems. IoT-based connected services are redefining the way businesses are run. They are giving rise to connected service ecosystems that can integrate end users, manufacturers, value-added solution providers, and platform enablers, creating value for customers while unlocking new revenue streams with pay-per-use or product-as-a-service models. An EV owner, for instance, could be guided to the nearest available IoT-enabled battery charging station. The same charging station could also alert operators to check the status of their equipment for a proactive maintenance call. Another scenario could be an EV owner leveraging a subscription-based model for battery replacements. The person could go to the nearest swapping station in a networked ecosystem and order a replacement of a discharged battery with a new one, using a battery-as-a-service model. Step 4: Ensuring visibility and control through a digital thread. A connected digital enterprise with the ability for contextual insights

and the agility to drive improved business performance must rely on a digital thread to interlink all the data related to a product throughout its life cycle. A digital thread helps reimagine the complete product development life cycle by providing: With the help of data, which is generated from each step of the value chain, a digital thread can provide a new dimension to how products are designed, manufactured, and serviced. A connected digital enterprise with intelligence built across the value chain can yield significant opportunities for both customers and businesses. The potential to create value is huge. But how do you measure the return? Our approach to measuring the value from a connected digital enterprise involves evaluating the gains across three dimensions. Inspired by TCS' Bringing Life to ThingsTM framework that emphasizes boundaryless, pervasive, and experience-rich aspects when looking at value generated from smart and unified business ecosystems, we've formulated an approach that looks at how to measure value from a connected digital enterprise through three lenses: These new business models are going beyond the traditional boundaries of an enterprise, industry agnostically, to bring cross-industry ecosystem play to life via pervasive platforms. An image that shows how a connected digital enterprise derives exponential value by being boundaryless, pervasive, and experience-rich. It shows how to measure the value that comes from being a connected digital enterprise through three lenses—within the enterprise, within the industry value chain, and in the cross-industry value chain. Within the enterprise, value created takes the form of functional silos being dissolved, 24/7 alerts and real-time visibility, and seamless experiences enabled by digital twins/threads. Within the industry value chain, the value generated can be seen in terms of real-time integration with suppliers and partners, field performance and predictive alerts, and the creation of new business models with ecosystem insights. Finally, we see the cross-industry value chain being strengthened through the capability to dynamically respond to demand and the ability to enhance customer value through cross-industry process flow. Sustainable by design, servitization, digital twins, circular and responsive value chains, and the orchestration or participation in multiple ecosystems and platform economies are emerging as the key themes influencing the decisions of industrial enterprises. And all of this is more achievable when a business is a digitally connected enterprise. Therefore, transforming into a 'digital enterprise' and being capable of utilizing digital intelligence from across the value chain is a 'here and now' strategic agenda for businesses to derive long-term benefits even as technology continues to advance. TCS IoT and Digital Engineering Advisory Leveraging digital threads to unlock the value of product data Ensuring the Digital Factory Delivers on its Promise How IoT-led Connected Services Transform Business Models Are you game? Theme Font size Line height =====================

Four tech mega trends will give industry leaders an IoT edge

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Bringing Together IoT and Digital Engineering to Create Rich Experiences Highlights On this page Toward servitization A paradigm shift Tech mega trends converge GenAI-based value Keys to realization Journey to transform About the author Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Sreenivasa Chakravarti Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Sreenivasa Chakravarti Vice President, IoT and Digital Engineering, TCS You have these already downloaded We have sent you a copy of the report to your email again. Most industrial, manufacturing, asset-heavy, and engineering-oriented value chain leaders are focused on digital-led transformation, and we believe future leaders will be those who can harness next-gen IoT, AI, and related technologies. The role of IoT is becoming increasingly integral to the evolution of new business and operating models. Businesses are therefore focused on driving value creation and efficient growth through IoT-led digital transformation and engineering innovations. By doing so, they can boost their overall revenue potential in the market while growing their wallet share among existing customers. From transportation and manufacturing to healthcare, energy, and supply chains, industry leaders are reimagining their businesses using IoT and other digital technologies to create efficiently connected, cognitive, and intelligent value chains. These value chains are geared toward servitization by seamlessly integrating products with services. There is a growing need to transform business operations toward this end by establishing traceability across the as-designed, as-manufactured, as-in use, and as-serviced product management life cycle stages. By deploying a product-as-a-service (PaaS) model with end-to-end life cycle traceability,

businesses can efficiently and effectively expand, manage, and continuously enhance their PaaS offerings to drive new value and growth. Looking forward, a technology revolution can catapult IoT-led transformations with advanced levels of capabilities. A connected future will effectively open the door to new collaborative development possibilities for intelligent and sustainable-by-design enterprises and their ecosystem partners. Business heads of research and development, engineering, manufacturing, supply chain, and sustainability will want to keep a close eye on the four converging tech mega trends of software-enabled things, digital twins, AI and GenAI, and edge-to-cloud computing with 5G connectivity. By doing so, they will be better prepared to seize a competitive edge. Technology-forward businesses that embrace change with an IoT and engineering innovation mindset will be in the best position to seize new business growth opportunities. The long-term outlook for the enterprise IoT market is continued growth. According to IoT Analytics research, the size of the enterprise IoT market was $269 billion in 2023 with spending indicating a growth rate recovery beginning in 2025 and a CAGR of 15% estimated until 2030. TCS sees the rapid evolution of software-enabled things, digital twins, AI and GenAI, and seamless edge-to-cloud computing with 5G connectivity as significantly influencing digitalization and contributing to continued growth for businesses during the next few years. We expect a major shift in the business landscape to occur with new opportunities for transformative growth through the convergence of these technologies: New cars sold today, for instance, generally come loaded with software, but certain features are only visible or enabled if a buyer opts to pay for them. The behavior of a vehicle is, therefore, determined based on changes applied within the software configuration rather than the physical hardware. Another example is readily apparent in our use of everyday consumer appliances and electronics—from smart coffee makers and refrigerators to lights and TVs. Today, we can remotely operate and monitor their use from our mobile phones. Such conveniences, which were once a novelty, are now part of our daily life. Digital twins: We believe that we have the data needed to digitally replicate potentially any physical product, facility, or process in a virtual world. In effect, the technology is evolving as a "digital twin of everything." Through today's advanced data-centric capabilities, the technology can now be used to create a complete and exact replica of a product, as well as the production facility where it is made and end-to-end supply chain processes. For instance, we can visualize, simulate, and test an automotive or airplane engine in the virtual world before even releasing it in the physical world. Moreover, we can operate it remotely because it is software-enabled. All this is now possible with the technology becoming deeply ingrained in organizations as they scale on their transformation journeys. This level of technological advancement has been enabled by an economic model that clearly shows declining cost points. AI and GenAI: IoT has thrived through its ability to access real-time data-driven insights and predictive analytics using traditional AI. There is an abundance of available data with hyper-connected products, processes, and systems, and the potential for also leveraging contextual information is therefore increasing exponentially. You can now implement a GenAI application with a chatbot interface on top of data to access contextual information across an enterprise. These developments enable more effective and higher-end deployments of AI such as those used for robotics in industrial settings. 45% of executives surveyed

believe up to one-half of their employees will be using GenAI daily in three years. Effectively serving as digital assistants to employees, GenAI tools can also be used to facilitate informed decision making with personalized knowledge augmentation capabilities (learn more about becoming a knowledge-driven enterprise). For instance, you can query a system about optimal points of operation based on historical data or the standard deviation of errors in assessing whether to continue production. Based on the global TCS AI for Business Study Key Findings Report, 45% of CEOs and other senior execs believe up to one-half of their employees will be using GenAI daily in 3 years. This anticipated adoption, however, necessitates an integration of the emerging wave of GenAI capabilities with more established industrial AI and rapidly maturing computer vision capabilities with the IoT capabilities. 4. Edge-to-cloud computing with 5G connectivity: Technology advancements in 5G (and with 6G on the horizon) are enabling better bandwidth, faster speeds, and more cost-efficient management in driving this modern computing paradigm. The ability to process data at the device edge or cloud edge, virtually from any IoT-powered device or industrial equipment with seamless integration to the cloud, enables real-time decision-making capabilities. Businesses will have the opportunity to reimagine their value chains through technology convergence, deploying new connect-in-context, predictive, and self-healing capabilities. While technological convergence will act as a catalyst for change, TCS foresees some industries proactively embracing the evolving trends and leading their markets at greater speed. Industry leaders will create systems, processes, and products based on an advanced set of technology capabilities designed to boost both operational efficiencies and effectiveness. By connecting in context, IoT networks will become smarter, enabling the right information to be received at the right place and time. They will have the ability to predict future events and outcomes by analyzing and identifying trends based on historical and contextual data in combination with unstructured data. Using GenAI, various forms of unstructured data may also be analyzed¾from sensor and computer vision data sources to knowledge gleaned through logs and books. Equipped with self-healing adaptive tenets, next-gen systems will autonomously detect and fix problems themselves. An infographic depicting the convergence of four tech mega trends and the future of IoT possibilities illustrated through five strategic deployments. The four tech mega trends include software-enabled things, digital twins, AI and GenAI, and seamless edge-to-cloud computing with 5G connectivity. The five strategic deployments include autonomous journeys, factory of the future, servitization, energy transition, and sustainability by design. The future of IoT possibilities can be illustrated through five strategic deployments: Autonomous journeys: In the new age of self-driving cars, technology and innovation are converging to reimagine journeys with improved navigation capabilities and safety in preventing collisions. The cars must be able to communicate with each other and make split-second decisions. Advancements in edge computing will effectively eliminate the issue of latency by processing data between cars in real time at the source. This real-time data processing capability applies not only to a mobility context but also factory operations and all forms of software-defined products. Factory of the future: The manufacturing landscape is witnessing a major shift where connectivity and data are fundamentally changing how factories operate for overall increased efficiency and productivity. Enabled with

digital intelligence and neural processing capabilities, smart and connected plant operations will essentially think, sense, and act. They will respond and innovate with greater agility based on evolving market demands, supply chain signals, and personalized product configurations while optimizing production runs with modernized and sustainable operations. Servitization: Connected service ecosystems will emerge through the seamless integration of solution and software platform providers with product manufacturers across the value chain. The focus is on delivering personalized value in addressing end-user customer needs through pay-per-use or PaaS models. For instance, smart health services and devices will enable the delivery of more personalized care options with remote and self-monitoring capabilities to help people manage various conditions and improve their well-being. Energy transition: Energy resource consumption and emission patterns among global organizations are rather complex and unpredictable. By combining the use of IoT, edge, and AI-based analytics, businesses will have the data-driven insights needed to build greener value chains and progress their energy efficiency and carbon neutrality goals. Real-time tradeoffs between cost and carbon footprint print, carbon trading, and visibility into the full value chain for carbon intensity will lead to the evolution of an open internet kind of platform for distributed energy exchange. Sustainability by design: Organizations will satisfy continually evolving customer expectations and drive growth into the future by designing operations with business agility and environmental and social responsibility goals in mind. With access to real-time data across a connected value chain for measurement and analysis, businesses can drive new value creation and seize a competitive advantage while supporting a commitment to environmental and social stewardship. The reengineering of legacy products with carbon-friendly materials will be key to attaining sustainability by design. Applying a GenAI-based context to value creation can help to visualize the tremendous potential that awaits with next-gen IoT. When it comes to enabling and driving value creation through IoT, traditional AI combined with the advances in GenAI are emerging as a powerful technology duo. While operational efficiency and productivity gains are still important benefits to realize, the journey to value does not end there. The arrival of GenAI will help deliver on the promise of IoT and unlock new game-changing potential for driving improved operational performance and engineering innovation. Leveraging personalized knowledge augmentation capabilities will drive new value creation by improving strategic thinking and decision-making across an enterprise. The spectrum of progressive business benefits to be realized, for instance, may include improved: While the transformative possibilities of IoT are limitless, there are also business risk and impact considerations that must be addressed to successfully participate in a connected world. To realize value with an IoT-led transformation, three key considerations include: Security risks: The convergence of information technology (IT) and IoT/operational technology (OT) systems in creating a connected value chain can introduce new security vulnerabilities. Wherever there are touchpoints along the value chain between the digital IT and physical IoT/OT realms, there are potential attack points. As industry leaders look to deploy next-gen IoT capabilities, the overall potential benefits versus the risks and costs must be carefully weighed and justified. They must assess what business and operational activities need to be conducted at the edge and the infrastructure

requirements versus what should be processed and stored in the cloud or inside a closed premise. Climate impact: Environmental protection and sustainability goals are a top priority for any socially responsible business today. Businesses must therefore ensure that their IoT strategy is future-ready and sustainable by design to contribute toward the global agenda for net zero carbon emissions. According to the World Economic Forum's Internet of Things Guidelines for Sustainability report, IoT is among the largest enablers for responsible digital transformation, but sustainability goals must be considered early on in the design phase of IoT projects to realize their full potential. The report estimates that by 2030, industrial IoT alone could add up to $14 trillion in economic value with the potential increasing as consumer and public sector IoT use are included. Responsible AI: Businesses must consider how they will manage the change of introducing AI and GenAI into the real world in a sensitive, ethical, and responsible manner to facilitate the acceptance of a collaborative human-machine workforce. They must help employees understand the potential process and performance improvement benefits of leveraging a personalized AI augmentation capability to work smarter rather than viewing it as an existential threat. But empowering employees with AI capabilities, in turn, creates a potential risk that they could expose an enterprise's competitive engineering intelligence. Safeguards must therefore be implemented to support the responsible use of AI among employees. Because there are tradeoffs with any of these considerations and no straight answers, applying a strategic and comprehensive approach to an IoT-led transformation is paramount to help ensure success. When envisioning a path to transform through IoT, businesses must focus on the dual objective of creating value from an economic and competitive differentiation perspective. The planned investment in edge/IoT computing is expected to rise from 45% to 48%, according to the findings of a recent TCS Global Cloud Study conducted among senior executives. This uptrend is based on the percent who, at the time of the survey, had increased their investments in the past 12-24 months compared to their intended investments in the next 12-24 months. As businesses invest in building an IoT infrastructure and capabilities to support their operations into the future, they must step wisely. Starting with value discovery, business stakeholders must convene to assess their needs and prepare a roadmap by identifying and prioritizing their IoT initiatives through a top-down, holistic approach. Progressing to the value realization step in the journey, the business will then structure and enable the technology backbone to deploy the IoT strategy. At this point, research and development converges with business and operating models. Reaching the value optimization stage, the focus shifts to enhancement, support, and ongoing maintenance. An infographic depicting the overall journey and specific steps to transform through IoT, advancing along a roadmap in three stages from value discovery to value realization and value optimization. The initial stage of the journey is focused on value discovery through business outcome-led thinking, which includes an overall vision and strategy, architecture design, and AI-ready organization design. The second stage is focused on value realization through building and deployment, which includes technology choices, partner and innovation ecosystem development, data strategy and life cycle management, and an integrated approach to the four mega trends. The third and final stage in the journey is focused on value optimization through a sustainable-by-design approach,

which includes the transition to superior energy options, adoption of autonomous journeys, an empowered workforce for self-sustained business improvement, and competing on insights. As the four tech mega trends of software-enabled things, digital twins, AI and GenAI, and edge-to-cloud computing with 5G connectivity converge to create the next generation of IoT, new opportunities for business value creation and sustainable growth will rapidly emerge. Business leaders who start preparing for their IoT-led transformations today will gain an edge in their industries. TCS Launches New IoT Engineering Lab in Ohio to Accelerate Innovation for Clients Leveraging Digital Intelligence to Build a Truly Connected Enterprise Software-defined products: the path to product transformation 21st-century neural value chains — Heralding the future of manufacturing Theme Font size Line height =====================

Boost your digital thread with knowledge graphs and GenAI

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news stories from across TCS. Discover our press releases, reports, and company announcements. Prabhu Patruni Head - Digital Thread Solutions, IoT and Digital Engineering, TCS You have these already downloaded We have sent you a copy of the report to your email again. A digital thread establishes digital continuity across the enterprise value chain, helping overcome process and system disconnects. Manufacturing companies are battling multiple challenges—new business models, the pressure to deliver sustainable solutions and outstanding customer experiences, evolving ecosystems, and increased product complexities. They are struggling to quickly roll out products, be more responsive to change, control costs, and improve productivity and operational excellence. Overcoming these challenges will require them to simplify and integrate their disconnected business processes and systems and accelerate their digital transformation. Building a digital thread to establish digital continuity across the enterprise value chain can minimize the process disconnects and bring traceability to product data and processes. This will give companies control and enable a seamless flow of contextual product data required to make timely and informed decisions. Digital threads are the data foundations that power digital twins and are continuously updated with insights and recommendations from these twins. They are characterized by four key behaviors: When combined with knowledge graphs and generative AI (GenAI), the business transformative potential of a digital thread goes up exponentially. Together, they allow unprecedented levels of data discovery on vast amounts of data to generate intelligence and new contexts. This approach is perfect for handling product life cycle data. A key challenge that the industry has been grappling with is modeling product life cycle data using industry-standard ontologies and trying to achieve seamless interoperability between different stakeholders who work on diversified systems. The diverse nature of data and data formats makes the task daunting. Knowledge graphs are well-suited to modeling and delivering a highly networked web of data. This makes them a perfect complement to digital threads, which can be visualized as a web of complex, diversified product artifacts and data covering the entire life cycle of a product. Together, they can help companies unlock greater value from product life cycle data, better visualize traceability across the end-to-end product life cycle, and drive their product life cycle strategies. They can: There are many exciting real-world applications for various stakeholders in product development. Different personas involved in product development need different contexts of product life cycle data for their day-to-day decision making. With a knowledge graph implemented on top of an enterprise digital thread and used as a platform for running AI and GenAI algorithms, persona-based views can be easily generated for various business contexts. For instance: Knowledge graphs, digital threads, and most recently GenAI have gained traction in the industry and are increasingly being used to build scalable, intelligent, and interoperable solutions. To fully exploit the combined potential of knowledge graphs, digital thread, and GenAI, enterprises need a resilient, scalable, and interoperable architecture. Such an architecture can help deliver innovative solutions to address data complexities, allow better visualization, and enable intelligent analytics. We envision a multitier architecture integrated with enterprise systems and comprising five key layers: The image envisions an architecture for knowledge graphs, digital thread, and GenAI that is integrated with

enterprise systems and comprising five integrated layers. Such a scalable and resilient architecture can help companies extract and prepare a complete product data network, which can be harnessed for key business decisions. The power of three—knowledge graphs, digital thread, and GenAI—can be effectively used to reimagine problem-solving in product development. It can be applied across industries, as shown by the high-impact, cross-industry use cases below: Digital threads, knowledge graphs, and GenAI can unearth impactful data points entangled in complex product data networks and unlock exponential value for companies. Working in concert, they can boost productivity and responsiveness for companies. They can help enterprises make informed decisions, deliver cost-effective products, minimize asset downtime, or create sustainable, innovative designs that reduce friction in the customer value chain. Indeed, the opportunities for transformation across the value chain are unprecedented. Those who move in early to capitalize on these opportunities and harness these powerful technologies to identify disconnects across the enterprise, navigate product data complexities, build traceable product life cycles, and rapidly generate intuitive designs are already on the path to greater success. TCS Launches New IoT Engineering Lab in Ohio to Accelerate Innovation for Clients Leveraging Digital Intelligence to Build a Truly Connected Enterprise Software-defined products: the path to product transformation Traverse the Journey to Smart and Connected Products with TCS Ready to bring life to things? Theme Font size Line height ======================

Six steps to realize business value from Industry 4.0

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believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Geeta Rohra Global Head - Advisory, IoT and Digital Engineering, TCS Devashish Das Managing Partner - Advisory, IoT and Digital Engineering, TCS You have these already downloaded We have sent you a copy of the report to your email again. Manufacturers are leveraging Industry 4.0 technologies to drive operational efficiencies. However, measuring the business value of those technologies is difficult, as there is no systematic approach to do so. Ever-evolving technology is disrupting the way manufacturers run their businesses. Across the manufacturing value chain—production planning and control, asset maintenance and inspection, or logistics and inventory management—the impact of technology disruptions such as the recent advances in AI and generative AI (GenAI) are being felt. To respond and adapt to these disruptions, manufacturers have been leveraging Industry 4.0 technologies to drive operational efficiencies, adopt new ways of engaging with customers, and operate in an ecosystem model across the value chain. When it comes to technology adoption, the big challenge CXOs face is not about use cases for technology adoption but how to approach, adopt, and scale Industry 4.0 technologies. They struggle to find answers to questions like: Measuring business value is quite subjective as it involves estimating the value of intangibles such as safety and sustainability in addition to tangible value that has a direct impact on cost savings or revenue. The lack of systematic approaches to guide enterprises toward successful adoption, measurement of key performance indicators (KPIs), and people and change readiness make the task daunting. To realize the full value from their Industry 4.0 investments, manufacturers need to address multiple challenges. The Industry 4.0 revolution and technologies such as the internet of things (IoT) have empowered manufacturers to improve their operational efficiencies and move to new business models, including servitization. They have accelerated research and innovation, driven speed to market, improved worker health, safety, while helping businesses meet their sustainability goals. In other words, manufacturers are better prepared to respond to change. But often, manufacturers are oblivious to the full value of Industry 4.0 initiatives. An electronics contract manufacturer, which had more than 50 in-flight projects across more than 100 sites, had limited visibility into the business value that these projects yielded and the additional investments needed. While some pilots gave them the intended business value, scaling them across sites was a challenge. Figure 1 highlights the typical challenges manufacturers face while embarking on their Industry 4.0 journey. Unless such challenges are mitigated, business value and the ROI from Industry 4.0 projects will remain elusive. The

question is, how do we overcome them? An infographic depicting typical challenges faced by manufacturers while embarking on their Industry 4.0 journey. Manufacturers are challenged by the low adoption rate of manpower largely due to a lack of upskilling and training and also lack of sponsorship from business and IT leadership. With regard to process, they are challenged by the scalability and availability of key performance indicators (KPIs) that measure business benefits. Lastly, manufacturers are challenged by evolving technologies and their relevance to manufacturing processes and assets. To solve these challenges, manufacturers need to adopt a structured approach. It will ensure a smooth adoption of their Industry 4.0 initiatives, yielding the intended business value. Here are six steps that we recommend manufacturers to follow: 1. Value discovery: The first step is to take a top-down approach and identify their vision and objectives from Industry 4.0 and then combine it with a bottom-up approach of understanding their current challenges, needs, and aspirations. Manufacturers should reassess their current projects, objectives, and key KPIs being used; benchmark them with industry practices; and prioritize them in terms of accelerating or sustaining the pace and re-evaluating investments. The value discovery will identify current digital maturity and gaps along with digital capabilities and use cases. 2. Identifying KPIs and baselining: Next, manufacturers must map KPIs against use cases (both tangible and intangible) and their baseline data. Most commonly, they encounter challenges in identifying the right KPIs which can be addressed by: 3. A business value framework: A KPI value framework, also illustrated in Figure 2, can measure the business value of Industry 4.0 use cases. For example, the KPIs impacted in a predictive quality analytics use case are scrap, first pass yield, and overall equipment efficiency (OEE). By baselining the KPI value and then estimating the KPI improvement on implementation, we can assess the financial impact of the use case. Figure two presents a list of impacted KPIs, the baseline value of each impacted KPI, KPI improvements achieved by peers for similar use cases, industry benchmarks, and more. These steps provide us with the basis to improve the impacted KPI, which is used to determine the financial impact of that KPI. 4. Cost governance: Manufacturers must allocate budgets for Industry 4.0 initiatives spanning opportunity discovery to industrialization, which are typically drawn over one to three years. The costs typically include build costs such as design, proof of concept, and more; cost of integrating different applications; infrastructure costs; annual maintenance costs (AMC); and license costs for third-party software—all these costs contribute to the total cost of ownership (TCO) for a use case. Once the business value and TCO is available, manufacturers can prioritize use cases based on ROI from lowest to highest. Prioritizing these use cases based on ROI must be done through a governance forum involving all stakeholders. They must create and set up a transformation office (TO), which can govern, review, and measure business value and workforce change adoption, and keep track of these activities consistently. 5. Pilot site assessment and deployment: Prioritizing use cases based on ROI only will not yield the right business value. It's also important for firms to understand which sites are ready for a minimum viable product (MVP) or pilot implementation in terms of infrastructure, master data, people, or change readiness. For this, they must perform a pilot site assessment, where they can rank sites or groups of sites, which will give them the maximum business value. We recommend the following parameters

to conduct a pilot site assessment: If a firm is not able to realize business value, then the firm's transformation office should re-evaluate the use case and take necessary course corrections. 6. Scaling and sustaining the momentum: To realize exponential value, we believe the following considerations will be helpful for manufacturers to scale and sustain a use case solution across sites and geographies: The advent of Industry 5.0 complements the advances made in Industry 4.0. Organizations must embrace the ethos and values of Industry 5.0, such as human-centricity and sustainability in their manufacturing and supply chain processes, during their Industry 4.0 journey itself. Technological advancements such as GenAI are redefining the ways of working and are disrupting organizations as they build on the AI continuum. An organization's transformation office plays a significant role in driving through this transition with right governance while nurturing the innovation process. Ensuring the Digital Factory Delivers on its Promise Leveraging Industrial Digital Twin for Better Business Value Leveraging Digital Intelligence to Build a Truly Connected Enterprise Build Value with a Sustainability by Design Approach Theme Font size Line height =====================

Remote automated testing for digital cockpit systems

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every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Anish Ghate Technology Head, Digital Cockpit CoE, IoT and Digital Engineering, TCS Shantanu Daware Technology Head, Digital Cockpit CoE, IoT and Digital Engineering, TCS You have these already downloaded We have sent you a copy of the report to your email again. Feature-rich and connected digital cockpit systems are redefining the driving experience. In-vehicle digital cockpit systems, including infotainment displays, instrument clusters, passenger displays, and heads-up displays, significantly enhance the overall user experience. To elevate this experience further, original equipment manufacturers (OEMs) are incorporating new modalities such as voice and gesture recognition inside vehicles. Modern digital cockpit systems extend beyond navigation and standard infotainment features such as media, tuner, and bluetooth to offer a diverse set of connected features such as emotion and face recognition, conversational artificial intelligence (AI), driver health and wellness, smart home integration, social networking, camera services, and internet radio. Notably, for most of these features over-the-air (OTA) software updates can be done post-vehicle purchase. The cockpit feature set can be further expanded using downloadable apps of users' choice. In the era of OTA updates, digital cockpits require continuous validation for safety, security, and quality before any software updates go live. This validation process involves different types of testing, including unit, functional, system, security, user interface and user experience (UI/UX), compliance and standards, localization, and user acceptance testing. For large systems, the number of test cases can soar beyond a few hundred thousand across multiple vehicle programs, resulting in the demand for automated testing. During the development life cycle of a digital cockpit system, these test cases are executed more than once on device under tests (DUT) at different stages. The advent of OTA has also transformed the testing landscape, necessitating continuous validation throughout the vehicle's lifespan. In response, automated testing has emerged as a cornerstone, increasingly embraced by numerous OEMs and tier-1 companies in the digital cockpit domain. Automated testing in an agile environment with multiple geographically dispersed stakeholders presents unique challenges. Some of these challenges are: The software development ecosystem, involving numerous stakeholders, extends beyond OEMs to include software development partners, platform providers, niche technology partners, tier-1 players, system integrators, and program management partners. These stakeholders are mostly dispersed globally and engaged in multi-location co-development, integration, and testing. Replicating high-cost auto-test setups across multiple locations may not always be feasible. The solution lies in effectively using the existing auto-test infrastructure so as not to impact the program costs, schedule, and software quality. A novel approach to cloud-based automated testing can enable accessibility to hardware remotely in real time and ensure optimal use of existing test infrastructure. Overcoming the challenges of effective utilization of existing hardware and automated test cases involving other peripheral devices requires a novel approach. One

that allows accessibility to hardware remotely and in real time via the cloud, optimizing existing infrastructure for testing purposes. We envision an approach involving: Remote access to on-premise testing setups, improving the productivity of geographically dispersed teams: This involves using a user-friendly web portal that allows individual team members from various geographical locations to remotely access and manage existing auto-test setups. Through this portal, users can schedule test cases, continually receive test case execution results, and review execution reports. This approach allows the auto-test infrastructure, including cameras, smartphones, smartwatches, and DUT, to remain on-premises while being remotely accessible through the cloud. Complete test case coverage with efficient issue analysis: With remote accessibility, all testing can be executed on the actual hardware, ensuring alignment with the real digital cockpit system. Users can keep track of all the activities through an intuitive interface for viewing DUT logs, and live and recorded test case videos. They can also access dashboards displaying current and past test executions, providing valuable insights into test coverage and overall software stability. Easy integration with other systems with APIfication: APIfication of services facilitates seamless integration with continuous integration and continuous deployment (CI/CD) systems, making functional automated testing an integral part of the build pipeline. This integration enhances software stability and quality during the development phase. This approach also includes adapters for easy integration with bug tracking and project management tools, allowing test results to be published directly to third-party solutions and triage teams. Cloud-based remote auto-testing of digital cockpits ensures rapid, stable, and secure deployment of software updates and new features. By leveraging the power of cloud and optimizing the use of existing auto-testing infrastructure, along with real hardware testing, such a remote automated testing approach for cockpit systems ensures swift and reliable deployment of new features. It will help OEMs adhere to standards of safety, security, and quality that are crucial for safe mobility. Such an approach becomes all the more important as we move to a time when vehicle features and functionality are continually updated through frequent software updates and throughout a vehicle's lifetime. It's the way forward for OEMs, tier-1 companies, and other stakeholders—one that not only elevates software quality but also increases the returns on investments. Software-defined vehicles: Four takeaways from the aviation sector TCS Positioned a Leader in ACES Automotive Engineering Services by Everest Group Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Virtual validation for efficient autonomous driving testing Theme Font size Line height ======================

Voltas predictively maintains its chillers

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steps What made this happen Related reading Change begins here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Intelligent products Connected services Connected plants Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS helps Voltas develop a remote chiller monitoring system to prevent chiller breakdowns across India. You have these already downloaded We have sent you a copy of the report to your email again. Voltas initiates steps for preventive maintenance to avoid chiller equipment breakdowns. India's premier air conditioning and engineering services company, Voltas, needed to train and deploy field engineers to regularly maintain its chillers at 1000+ locations across the country. Often, it took multiple visits to problematic sites to identify the operational issues and eventually fix the problem. This resulted in additional maintenance costs. Voltas needed to leverage their vast experience in chiller management to track breakdowns in advance and avoid unexpected failures and unavailability of spare parts.   TCS leverages IoT to enable centralized HVAC equipment monitoring TCS enables centralized HVAC equipment monitoring with an IoT based solution. TCS utilized their IoT framework, Intel deployed their IoT gateway, and Voltas leveraged their chiller expertise —to jointly develop a centralized system that could remotely monitor chillers across different geographies. We leveraged our in-house Sensor Data Analytics IoT Framework (SDAF) to acquire data from the IoT gateways and send it to a Big Data based cloud platform for: Real-time data processing Complex event processing Storage for batch processing This enabled real-time reports and dashboards. Our end-to-end solution helped Voltas: Diagnose real-time health of their chillers through a live dashboard Identify anomalies in the equipment parameters to facilitate alerts and notifications

to their field engineers Predict failures in equipment for proactive maintenance Voltas is envisioning a predictive maintenance system leveraging big data & analytics to increase their equipment availability and improve customer satisfaction. Intelligent products Leverage our digital engineering expertise to provide superior customer experiences and take software-defined, AI-embedded, intelligent products to market faster. Connected services Power your servitization journey to create greater customer value and new revenue streams with reliable products and services. Connected plants Gain a competitive advantage with improved productivity, operational efficiency, and resilience from connected plants. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height
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Voltas develops Remote Chiller Monitoring System to prevent chiller breakdowns

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tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Voltas initiates steps for preventive maintenance to avoid chiller equipment breakdowns. India's premier air conditioning and engineering services company, Voltas, needed to train and deploy field engineers to regularly maintain its chillers at 1000+ locations across the country. Often, it took multiple visits to problematic sites to identify the operational issues and eventually fix the problem. This resulted in additional maintenance costs. Voltas needed to leverage their vast experience in chiller management to track breakdowns in advance and avoid unexpected failures and unavailability of spare parts. TCS leverages IoT to enable centralized HVAC equipment monitoring. We leveraged our in-house Sensor Data Analytics IoT Framework (SDAF) to acquire data from the IoT gateways and send it to a Big Data based cloud platform for: Real-time data processing Complex event processing Storage for batch processing This enabled real-time reports and dashboards. Voltas is envisioning a predictive maintenance system leveraging Big Data & Analytics to increase their equipment availability and improve customer satisfaction. Cloud-based Remote Automation Testing for Digital Cockpit Systems TCS at AUTOMA 2024 Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Ready to secure your digital estate? =======================

RS Components gets its customers closer, and its costs lower

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analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. RS Components is the world's largest distributor of electronics and maintenance products. They partnered with TCS to build a new AWS IoT based reporting and condition monitoring system - RS Industria. This allows customers to connect their manufacturing assets quickly and easily, for real time monitoring into the causes of production losses and component failure. The system also helps reduce the site's energy consumption by monitoring usage at a production line level. RS Components, the world's largest distributor of electronics and maintenance products, is a trading brand of UK-based Electrocomponents plc. The company supplies industrial products, electronic and electrical components, test and measurement equipment, engineering tools and consumables via e-commerce, telephone and RS Local stores. It operates in 32 countries serving over 1.2 million customers with 500,000 stocked products from over 2,500 leading suppliers. RS Components partnered with TCS to create a new business model that would enable new value-added services in industrial maintenance, foster closer relationships with customers, and drive further demand for its products. TCS used its Bringing Life to Things™ IoT framework and its deep domain knowledge in digital manufacturing, remote diagnostics, and predictive services to help build a new AWS IoT based reporting and condition monitoring system that has been branded RS Industria. [TCS'] IoT expertise, their knowledge around remote diagnostics and predictive services, their understanding of the Amazon Web platform and how to build really advanced solutions… and their collaborative way of working… helped us realize our vision around this new offering much faster. RICHARD JEFFERS This scalable, secure new platform allows customers to connect their manufacturing assets quickly and easily, for real time monitoring that provides insights into the causes of production losses and component failure. RS Components' first client for this solution, a food manufacturing site in the UK, has a number of high value assets such as industrial motors, production line equipment and a treatment plant connected to the platform. The real-time monitoring and insights generated by the system have helped cut fresh water consumption, and also reduce the effort and cost of managing the wastewater treatment. Industrial innovation evangelist The system is also being used to help reduce the site's energy consumption by monitoring usage at a production line level, highlighting specific areas of energy loss in the production process. In the near future, the customer is using the modularity of RS Industria to rapidly expand the

system to enable condition monitoring of critical assets. RS Components and TCS are now working together to replicate this success for other end-customers in other industry segments. Partnering with TCS for its growth and transformation has helped RS Components embrace a new business model that makes it a valued and trusted business partner to its customers, creates new revenue streams, boosts profitability and reinforces its position as an innovation pioneer in the industrial component ecosystem. Says Richard Jeffers, Director, Industrial Design Solutions, RS Components, "Partnering with TCS in launching RS Industria brought a number of strengths to us – their IoT expertise, their knowledge around remote diagnostics and predictive services, their understanding of the Amazon Web platform and how to build really advanced solutions in that space and lastly their collaborative way of working. All of these helped us realize our vision around this new offering much faster. Intelligent products Leverage our digital engineering expertise to provide superior customer experiences and take software-defined, AI-embedded, intelligent products to market faster. Connected services Power your servitization journey to create greater customer value and new revenue streams with reliable products and services. Connected plants Gain a competitive advantage with improved productivity, operational efficiency, and resilience from connected plants. Press release Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height
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Anglian Water Reduces Costs, Saves Energy

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TCS' In-Genius Smart Energy Management System

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monitor and notify on events. We monitored and reported the quality of energy data received from meters and enabled users to manage alerts and notifications, view, and track closure for facilities. This allowed analytics driven decision making. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height ======================

Toyo Tires rolls out servitization with TCS' help

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operating technology expertise. Forrester recently published a report highlighting Toyo Tires' path to digital innovation in collaboration with strategic partner Tata Consultancy Services. When Toyo Tires realized it needed to evolve to stay relevant, the company decided to adopt market-leading business models to become more adaptive, creative, and resilient. To embark on its path to becoming a digital business innovator, Toyo Tires worked together with TCS. Working with TCS, Toyo Tires developed the digital capabilities to create value-added services and pioneer the tire-as-a-service business model. Toyo Tires, whose business is all about tires, had little client feedback on how its products performed. To change this, it needed to use a variety of innovation practices. This included: Digitizing its knowledge of tire performance and maintenance to generate more timely insights. Defining its tire-as-a-service business model and piloting it with some commercial clients. A data insights and service-based business model. To generate predictive insights and develop new 'tire-as-a-service' business models, Toyo needed to first digitize its data gathering process. Toyo applied five innovation competencies outlined in Forrester's innovation toolkit for technology leaders: Innovate at the core of business: Toyo leveraged predictive modeling to develop and launch innovative, value-added services around tire performance and safe driving. Develop a test-and-learn culture to spark innovation: It collaborated across all departments to overcome resistance to change. Create a home for innovation initiatives: The company established a digital transformation headquarters to bring together existing innovation initiatives that could drive digital transformation across the organization. Leverage co-innovation partners and build an ecosystem: Toyo partnered with multiple technology and service providers to build an ecosystem that could help it create a new business model. Build expertise on digital and emerging technologies: The tires major built entirely new capabilities and expertise in analytics, predictive modeling, cloud, and data management to chart a robust course for its transformation and innovation endeavors. Creating value for itself and customers. Toyo Tires successfully validated the value proposition and reception of its tire-as-a-service model. With the new business model, it could increase safety for its customers, ensure real-time tire pressure monitoring, and faster tire replacement and maintenance. Working with TCS, Toyo could evolve as a digital service provider. By offering Toyo Connect as a value-added service bundle, customers could understand tire condition in real-time and make maintenance decisions based on actual wear and tear. Read Forrester's complete report here. Intelligent products Leverage our digital engineering expertise to provide superior customer experiences and take software-defined, AI-embedded, intelligent products to market faster. Connected services Power your servitization journey to create greater customer value and new revenue streams with reliable products and services. Connected plants Gain a competitive advantage with improved productivity, operational efficiency, and resilience from connected plants. Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to secure your digital estate? Theme Font size Line height
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system aimed to minimize evaporative emissions from traditional mechanical fuel tank systems through precise control of fuel valves. To turn this bold idea into reality and take Rhapsody to market, Kautex needed to build the capabilities to develop production-ready software. By partnering with TCS, Kautex established an in-house software organization.   With the shared purpose of providing safe and sustainable mobility to consumers, TCS and Kautex collaborated to establish an industry standards-compliant, end-to-end software development capability. The journey began with a joint workshop to understand Kautex's ecosystem. After the workshop, TCS, along with Kautex, set up the software organization, development scope, and the necessary tools. TCS helped Kautex build an agile environment with application life cycle management (ALM), devops, and continuous integration to accelerate product development. TCS developed the end-to-end software including model-based applications and basic software. The work involved software requirement analysis, architecture design, development, verification, and validation (through model-in-loop, software-in-loop, hardware-in-loop testing), and integration. TCS also helped Kautex in hardware design, functional safety, and ASPICE processes aimed at integrating automotive software best practices into its operations. As a result of the engagement, Kautex was able to successfully achieve ASPICE level-1 compliance within one year. This success story is being replicated in other Kautex product lines as well. Kautex and TCS believe that the in-house development of sustainable products will create a positive business impact for original equipment manufacturers (OEMs) by enabling faster time-to-market and enhanced user experience.   Building the future with intelligent software The partnership with TCS helped Kautex achieve the following benefits: Fully automated validation framework for all levels of software testing—this resulted in a 50% reduction in effort and 100% traceability during the development process, leading to faster time-to-market. Zero delays in the rollout of software even during the COVID-19 pandemic. Rapid digitalization of development processes through automated ALM and devops frameworks for intelligent, safe, and sustainable mobility. Reusable framework that can be applied to the development of other products, thereby accelerating Kautex's journey toward digital transformation. TCS has been a one-stop solution for all Kautex software development activities. Sonny Kandiraju Cloud-based Remote Automation Testing for Digital Cockpit Systems Six recommendations to realize business value from industry 4.0 Leveraging Digital Thread with Generative AI for Intelligent Insights Four Tech Trends to Unlock the Power of a Next-gen Internet of Things Ready to bring life to things? Theme Font size Line height

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Bringing life to plants that can think, feel, and act

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chain Optimizing supply chain performance Integrated planning Real-time tracking At the IDC European Manufacturing Executive Digital Summit, Sreenivasa Chakravarti, Vice President, IoT & Digital Engineering, TCS, spoke about how neural plants with human-like capabilities like those of intuition and autonomous action are the future. With self-learning and self-healing abilities, neural plants would make things like a downtime from a machine breakdown a thing of the past. We help make your plants become resilient and adaptive through our suite of neural manufacturing solutions, products, and platforms. TCS Digital Manufacturing Platform (DMP) Weave the neural information fabric through data ingestion, contextualization, visualization, and descriptive analytics. Read more TCS InTwin™ Create intelligent digital twins of plants, assets, systems, and processes through a customized AI-powered platform. Read more TCS Cognitive Plants Operations Advisor (CPOA) Deploy digital solutions with prescriptive insights for autonomous actions and unlock knowledge, data, and engineering sciences to make plants intelligent and future ready. Read more Realize your business' potential with our strategic suite of services and solutions. Build integrated Industry 4.0 capabilities. Make smart manufacturing a reality with collaborative and cognitive operations. Achieve workforce optimization. Transform into an adaptive and self-learning enterprise. Ensuring the Digital Factory Delivers on its Promise RS Components gets its customers closer, and its costs lower TCS named a leader in digital twin services by Everest Group 21st century neural value chains—the future of manufacturing Ready to embark on your neural manufacturing journey? Theme Font size Line height

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TCS Helps Nissan Motors with Vehicle Analytics System

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Bringing life to the connected digital enterprise

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capabilities on the cloud to improve your PLM maturity and achieve faster introduction of new products, lower costs, and improved engineering efficiency. Embedded Software Life cycle Management Harmonize the application life cycle management landscape to ensure accelerated, continuous delivery of high-quality software that meets regulatory requirements. Digital Product Development IT Transformation Adopt transformative managed services models that leverage automation, AI/ML, and more to improve efficiencies, reduce technology debt, and decrease the cost of ownership of your product development IT environment. Digital Plant Life cycle Management Manage engineering information for regulatory compliance and a smooth handover of information to operations teams. Digital Technology Transfer Accelerate the lab-to-pharmacy life cycle by digitalizing processes from drug discovery to commercial manufacturing. Leveraging Digital Thread with Generative AI for Intelligent Insights Leveraging digital threads to unlock the value of product data CIMdata applauds TCS embedded Software Lifecycle Management Services Embracing Service Innovation & Digital Technology for Business Growth TCS Recognized as a Leader in IDC MarketScape for Worldwide Manufacturing PLM Strategic Consulting Services TCS Positioned as a Leader in IDC MarketScape for Worldwide Manufacturing PLM System Integrator and BPO Services benefits Increase agility, accelerate innovation, and enhance customer experience. Accelerate time-to-market with 'first-time-right' products. Orchestrate the product life cycle across global ecosystem participants. Connect the value chain to bring contextual insights to stakeholders across the ecosystem. Ensure traceability across the life cycle to support sustainability and regulatory requirements. Leverage product performance insights to drive continuous improvement. Learn how we can help you build an agile, connected enterprise. Theme Font size Line height =====================

Bringing life to the connected services ecosystem

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TCS DigiFleet™ and TCS Smart Store win IoT awards TCS named Representative Vendor by Gartner® TCS—a leader in sustainability: Everest Group Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. IoT-based connected services allow organizations to transform their business models and create value. Reimagine the way you attract, serve, and retain connected customers by leveraging a common digital foundation together with ecosystem partners. Data-driven Industry-oriented Intuitive and human-focused Collaborative With a connected services ecosystem, enterprises can reinvent themselves across the value chain and accelerate business performance for a superior customer experience. S T Chander Accelerate your customer experience transformation and servitization journey with our services, products, and platforms. 01. TCS Clever Energy™ An AI-based software-as-a-service (SaaS) for predictive analytics of energy consumption Read more 02. TCS Cognitive AI A platform for multimedia-driven insights, embedded with a library of reusable AI modules for building applications Read more 03. TCS DigiFleet™ A solution that provides predictive, real-time insights for assets on the move Read more 04. TCS Envirozone™ A suite of sustainability solutions with multiple touchpoints in the industry value chain Read more 05. TCS InTwin™ A customizable, AI-powered platform to create intelligent digital twins of plants, assets, systems, and processes Read more 06. TCS Smart Store A secure solution to reimagine store operations, optimize operational costs, improve productivity, and enhance customer experience Read more Become a more sustainable, impactful organization with the depth and breadth of our connected services. Define your servitization models and evolve as a digital service provider. Improve people's everyday lives with intuitive, human-centric services. Benefit from TCS' proven track record of delivering business outcomes and creating long-term value with large-scale IoT solutions. Accelerate your servitization journey using rich insights derived from large amounts of data. Roll out and scale new services rapidly by making the most of technology innovation with connected ecosystem partners. Moving toward net-zero carbon emissions Moving toward net-zero carbon emissions A Four-Step Approach to Sustainable

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Bringing life to products

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Bringing life to smart and sustainable vehicles

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TCS Geospatial Intelligence Services

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localization. 06. Workforce management We empower seamless field force scheduling and dispatch, data updates, and synchronization of the workforce leveraging geographic information systems-based field survey, field operations, and field monitoring applications. 07. Spatial analytics This involves analyzing spatial patterns, simulating spatial models, proximity analysis, route optimization, site selection, thematics, and discovering anomalies to solve complex business problems for industries such as utilities, retail, logistics, insurance and energy.   Drive better and faster business outcomes with situational awareness. Transforming GIS Landscape for Improved Business Operations | Utilities How UK Power Networks Digitised Consent Management and Improved CX Leveraging Digital Intelligence to Build a Truly Connected Enterprise TCS IoT and Digital Engineering Advisory Theme Font size Line height

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Lead with cyber confidence

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combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Services / Cybersecurity You have these already downloaded We have sent you a copy of the report to your email again. With expanding threat perimeters in the digital world, cybersecurity is no longer just about compliance and risk mitigation—it is a growth imperative. Holistic cybersecurity strategy Security by design Proactive risk mitigation Security-as-a-service Protect your business with our comprehensive portfolio of consulting, implementation, and managed security services and solutions. Cybersecurity advisory and consulting Find the best match for your niche needs with our bespoke cyber insurance, e-commerce, 5G, connected vehicles, and connected medical devices security solutions–all contextualized with nuances for industries. Cyber-physical security Safeguard your critical industrial systems, connected devices, and intelligent edge, through seamlessly integrated cybersecurity services. Learn more. Digital identity management
Strengthen your identity and access management processes using our consulting, imple Digital workplace security Secure your cloud-first, mobile-first workplaces to deliver frictionless experience in the digital journeys of users across devices, while staying compliant to regulatory Enterprise security-as-a-service We help enterprises improve their security posture with a platform-first approach to integrate and modernize cybersecurity. Governance, risk and compliance Read how TCS Governance, risk, and compliance services helps customers automate GRC functions and simplify processes and requirements for better risk posture. Incident response and rapid recovery As firms face rising cases of cyber attacks, TCS' services provide capabilities that help predict and mitigate security incidents and build cyber resilience. Privacy and data protection TCS' data security services helps enterprises enhance data protection and meet compliance requirements, thus building a data-centric business with confidence. Secure cloud transformation With a Machine First™ approach, TCS Cloud Security Services solution ensures data and application safety amid the current and emerging cyber security threats. Threat detection and response TCS MDR solutions help enterprises gain a 360-degree view, automate response, and remediate cyber threats with contextual and strategic threat intelligence. Vulnerability management With services like DevSecOps and vulnerability management, read how TCS' solution helps businesses secure assets, identify threats, and accelerate remediation. Zero trust and edge security With 24x7 monitoring and a zero-trust approach, TCS Network Security Services help organizations elevate their security posture and support hybrid workforces. INDUSTRY SOLUTIONS Find the best match for your needs with our bespoke security solutions contextualized for specific industries. Grow your business with cyber confidence. Cyber Threats Within Digital Ecosystems May Be an Enterprise Blind Spot, Reveals New Study from TCS TCS Recognized as a Leader in IDC MarketScape Worldwide Managed Cloud Security Services TCS Recognized as a Leader in North America IT Security Services by Everest Group TCS Ranked Among Top Cybersecurity Service Providers by HFS Research A global credit bureau secures credit scores Engineering

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Create harmony between brands and people for sustained growth

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here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. We create harmony across design, technology, and data so you can create iconic experiences. Iconic designs Digital experience Insights-driven marketing Experience-first commerce AI-enabled measurement TCS Talks Tech Season 2: Navigating the Era of AI Experiences Designing Purpose-led Customer Loyalty Programs for Meaningful CX Deliver Experience First to Build Brand Value GenAI's impact on marketing Experience 4.0 for improved CX Superforecaster: Delivering Real-time, Automated Decisioning ITV reinvents the streaming experience How Sun Life transformed its customer experience TCS, Avery Dennison explore VR, digital twin tech DuPont E&I streamlines customer service In the news Recognition Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Services / TCS Interactive You have these already downloaded We have sent you a copy of the report to your email again. Unlock your CMO-CIO partnership with our new report. Design-led Insights-driven Experience first Immersive and inclusive 01. Iconic designs Create bold, intuitive, impossible-to-ignore designs for the future. 02. Digital experience Deliver omnichannel, immersive, hyper-personalized experiences using the latest technology. 03. Insights-driven marketing Bring to life digital products and services that make a difference with insights-driven marketing. 04. Experience-first commerce Transform the buyer experience to convert visitors to loyal customers and ultimately to brand advocates. 05. AI-enabled measurement Measure the effectiveness of your marketing investments by leveraging third-party data, advanced analytics, and AI-enabled platforms. Create experiences that matter with design-led transformation. Our deep contextual knowledge helps us craft purpose-led digital strategy and humanize technology to deliver unparalleled experiences for our customers. KAMAL BHADADA TCS New York City Marathon App Wins Leading International Award for New Second Screen Video Feature TCS named a leader in IDC MarketScape TCS a Large Player for Adobe Services Everest recognition for TCS Interactive TCS-powered

app drives first-ever Mass and Virtual Event 13th largest digital agency company in the world - Ad Age Agency Report 2024 Adobe's DX Partner of the Year Award at the Adobe Partner Summit 2022 Cyber Defense Magazine's Global InfoSec Award – Most Innovative Cybersecurity Education Adobe's Go for Gold Award – Best Omnichannel Solution - Customer and Employee Experience Sport Industry Awards 2021 (UK) - (Virtual) Event of the Year award Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

Redefine customer experience in the metaverse

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email again. The metaverse will be a fully immersive version of the internet, driven by augmented reality and virtual reality experiences in 3D spaces. Although, a fully functioning metaverse is probably 10 to 15 years away, for forward-thinking brands, the potential for leading the next revolution in customer experience has arrived. It's tempting to believe that we'll never again see such a radical transformation in customer experience. And then somebody tells you about the metaverse. We may have had our doubts—but smartphones and apps have turned the modern customer experience into a reality. Take it from businesses that adapted the e-commerce challenge and those that didn't. To be successful in the metaverse ecosystem, starting now CXOs and CMOs need to think bigger and further beyond boundaries than ever before.   Use cases for AR and VR are diverse and truly re-imagine experiences. Retailers have already started experimenting with virtual store models where users can enter into an AR version of the store, using their phone or tablet, allowing them to interact as if they were physically inside the shop. A B2B ecosystem benefits from immersive logistics and supply chain experience that facilitates real-time, virtual intervention in the fullfillment process. Imagine a supply chain specialist managing operations for a large retail chain. While relaxing at home, she gets a notification on her smart phone about a potential delay to a popular item. Entering the metaverse using a VR headset, she immediately has access to a bird's-eye view of the entire ecosystem, being able to identify the potential problem. With the help of artificial intelligence and machine learning, she is able to access every data point, right from shipping containers and stock-depletion rates to real-time location and status of delivery trucks, allowing her to quickly go the root cause of the issue and conduct a what-if analysis and come up with immediate solutions, and the team is notified on confirming orders, shipment changes, and the rerouting of delivery trucks. A task that required a room full of people can now be handled by a single person with VR gear. Training of nursing students using VR headsets can simulate scenarios such as delivering bad news to relatives of patients or dealing with emergiencies such as cardiac arrest. The system can track eye movement, pupil dilation, heart rate, perspiration and more using wearable sensors to assess how well the student is coping with the pressure of a stressful situation. The system also provides constructive feedback to the students by playing back the simulation. Seeing themselves from a third-person perspective helps students relate to the situation as observer and reinforces better techniques they can use in real-world scenarios. Businesses considering setting out on their metaverse transformation journeys should be well prepared for a long road with a steep learning curve. But this is, undoubtedly, the moment to get moving. It's only a matter of time before metaverse takes over the e-commerce apps. Designing Customer Loyalty Programs for Meaningful CX Deliver Experience First to Build Brand Value How ITV reinvented the streaming experience Superforecaster: Delivering Real-time, Automated Decisioning Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

Enhancing checkout experience with edge computing

Highlights Insights in this article INTRODUCTION CHALLENGES WITH LEGACY SYSTEMS AND TRANSFORMATION WITH CLOUD AND MICROSERVICES NEXT-GEN CHECKOUT EXPERIENCE WITH EDGE COMPUTING EDGE COMPUTING WITH LIGHTWEIGHT, OPEN SOURCE FRAMEWORKS IMPLEMENTING EDGE COMPUTING USING KUBEEDGE CONCLUSION Related Reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Rajarajan Srirangarajan Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 8 MINS READ Rajarajan Srirangarajan Lead Architect - TCS OmniStore™, Retail, TCS You have these already downloaded We have sent you a copy of the report to your email again. To achieve superior checkout experience, the store infrastructure must be equipped for heavy processing and handling large volumes of data transfers to central databases. This paper provides insights on how to drive next-gen experiences with edge computing without spending a fortune. 65% would like to scan items and see product information on phones, 50% want contactless payment options, and 20% are ready to use augmented reality magic mirrors to try on clothing.1 Such advanced and immersive technologies powered by the internet of things (IoT), sensors, and analytics can help retailers bridge the gap between in-

store and online experience while providing troves of real-time data to drive business outcomes such as improving customer lifetime value (CLV) and increasing sales and conversions. But many retailers are unable to seize these opportunities as they struggle with the fundamentals of checkout experience such as performance and availability issues resulting in long wait times, and lack of online like digital capabilities such as product locator, rich product content, and in-store personalization. To achieve a rich, high-performing, and uninterrupted in-store checkout experience, the store infrastructure must be equipped for heavy processing and handling large volumes of data transfers to the central instance. This white paper discusses how edge computing can give retailers a strategic advantage in the highly competitive retail landscape in enabling a rich in-store experience. It also explains how retailers can realize edge computing for checkout with lightweight, open-source technologies. Besides impacting the time to market (agility) of new features, it resulted in a heavy and complex store hardware footprint, requiring high manual intervention and maintenance costs, and also special tools and software not just to distribute and deploy new releases but also to monitor infrastructure across the retail estate. Also, new releases required heavy change management and cutover activities at stores, impacting the time to market. To simplify store infrastructure, reduce the high upfront infrastructure and maintenance costs, and be agile, several retailers have shifted to modern architecture with microservices and cloud technologies that can be scaled on demand and offer high availability with near-zero maintenance needs. But cloud architecture poses a fresh set of challenges, primarily around performance caused by network latencies between stores and the cloud, and availability. This has a direct bearing on customer experience, brand value, and profits of the retailer. The key limitations of cloud architecture for in-store are: Resiliency: Downtime due to service and network availability Performance: Network latency, causing speed issues Cost: High stress on network and bandwidth needs Digital: Lack of digital capabilities at stores limiting online-like rich, personalized shopping experience at stores Leveraging edge computing as a complementing technology to cloud computing not only saves time and money, but also solves latency, bandwidth, autonomy or compliance issues (see Figure 1). With edge computing, the central cloud capabilities are extended to the edge by leveraging a central container-based orchestration platform that can seamlessly manage the edge nodes (network and storage equipment), and, thereby, software rollout/upgrades and associated configurations. Edge computing can handle applications and workloads for thousands of store locations by running computational power through nearby edge nodes rather than risking data transfer speed and bandwidth challenges by accessing all services and data directly from the cloud.   With edge computing, retailers can realize scalable checkout service that can support multiple channels and also deliver next-gen in-store experiences (see Figure 2) with key capabilities such as rich product content, visual search, voice assistants, contextual recommendations, fraud detection using computer vision, and cashier-less autonomous checkout. This can further be extended to enable a high-performing, personalized digital checkout experience at stores with resiliency. Though there are a few edge solutions such as AWS Outposts and Snowcone (Amazon), and Azure Stack Edge and Azure Arc (Microsoft), these are all more focussed on the IoT edge architecture and require proprietary hardware and software

platforms, resulting in high costs and vendor lock-in. KubeEdge, which is a scalable, flexible, and lightweight open-source technology that can support heterogeneous platforms is a good alternative to the proprietary high-cost solutions for edge computing. It can extend native container orchestration (Kubernetes) and device management to the edge and provide core infrastructure support for networking, application deployment, and metadata synchronization between cloud and edge. When evaluating edge architecture options, retailers must consider several factors: Can the cloud capability be seamlessly extended to the edge? Does it enable centralized app distribution and management? Is the edge architecture scalable to thousands of store locations? Can services be deployed, upgraded, and rolled back seamlessly? Does it have built-in monitoring and self-healing capabilities? Does it require proprietary hardware or software? Can existing store hardware (virtual machines or the physical ones) be attached to the edge cluster to act as the edge gateway? The steps below show how the container orchestration capability (Kubernetes) can be extended to the edge using a lightweight, open-source technology such as KubeEdge. The checkout and digital services from the cloud can be deployed, managed, and monitored seamlessly at the stores without any specialized, proprietary hardware or software, ensuring a highly performant, always available and digitally enhanced checkout capability at the stores at minimal or no additional cost. Setting up central container management platform (Kubernetes): This can either be cloud managed (for example: AWS EKS, Azure AKS, or Google GKE) or an on-premise Kubernetes cluster. Deploy the required checkout services in the central Kubernetes cluster. Extending the central Kubernetes cluster to stores (edge) using KubeEdge: This involves two parts—the cloud component and an edge counterpart (called cloud and edge core). Both the KubeEdge cloud and edge components can be installed using an installer called Keadm. KubeEdge is a lightweight framework which requires minimal hardware footprint; for the cloud component, it is 2 core and 4 GB RAM, and for the edge core, it is only 0.5 core and 100 MB RAM. With keadm, KubeEdge cloud and edge core can be installed with simple commands. Once KubeEdge is installed (both the cloud and edge components), retailers can replicate the checkout services from the cloud to the stores (edge) seamlessly, making them highly performant and available. Offline mode (in-store resilience): The edge nodes and the deployed checkout services can run offline. They are available even when there is no connectivity to the cloud, fulfilling the key resiliency requirement for an uninterrupted and personalized checkout experience. Monitoring and self-healing: The entire edge infrastructure, including the edge nodes (virtual machines or the physical ones) can be monitored and managed through a centralized Kubernetes dashboard. This not only improves the end-to-end monitoring of the checkout services across the retail estate but also facilitates self-healing of the services, ensuring that the checkout services are able to recover from any failures or crash and, hence, are always available. Edge computing gives a high level of redundancy to process all transactions at the store itself, enabling a highly available and performant checkout experience at the stores. Open-source frameworks such as Kubernetes and KubeEdge allow retailers to realize the edge architecture in a cost-effective, vendor-neutral manner, allowing a seamless extension of cloud capabilities to the stores. Designing Customer Loyalty Programs for Meaningful CX Deliver Experience First to Build Brand Value How ITV

reinvented the streaming experience Superforecaster: Delivering Real-time, Automated Decisioning Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =======================

Why convenience stores must reinvent themselves

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has reduced footfalls in convenience stores. While in-person shopping practices may eventually return to pre-pandemic levels, dealing with this emerging shrinkage in gasoline demand is a challenge for many convenience stores. In the not-so-distant-future, gas-powered cars will no longer be sold in some markets. Case in point: California will stop selling new gas-powered vehicles by 2035. Washington state has the same goal for 2030. Even with legacy cars, the demand for gasoline will continue to decline as automobiles age and are removed from service. TCS survey shows that the relationship between customers and convenience stores is broken. There is little loyalty inside the store or outside at gas station pumps. Restoring that relationship is key to convenience store transformation and growth. So, what additional motivations could one construct to make a convenience store a destination rather than an adjunct when filling a vehicle with fuel or charging an EV? Thinking through the future for convenience stores, we see three areas of focus —enhancing customer experience, reimagining C-stores, and the traditional gas stations. Do you know who your customers are, what they like, and how they respond to your brand? What are their demographics, social media engagements and interactions with your brand? Insights into your customers' buying behaviour help build a customer profile that will assist in creating the right campaigns, outreach strategies, and personalized offerings to boost customer loyalty. While retailers are generally familiar with this type of data, historically C-stores have not collected it.   Hyper-personalization can go a long way in restoring the customer and convenience store relationship. C-store experiences will have to be enhanced to reflect customer sentiments in terms of new formats, experiences, products, and innovations, like drive-through stores, contactless checkout, and more healthy food options. An infographic showcasing how convenience store experiences can be enhanced to improve brand value and increase sales. The experiences can reflect customer sentiments through new formats such as drive-through stores, quick service restaurant layouts, connected commerce capabilities, contactless checkouts, healthy food options, servitization space for rent, and more. Empowering the C-store with connected commerce capabilities will also provide unified pricing and seamless experience across channels enabled by AI and a strong technological architecture. Remodeling the store to optimally manage space and support curb-side pick-up, enhancing merchandizing with the right product assortment, pricing, and promotion will also enhance customer experience. Same with managing the supply chain, which plays a big role in providing this seamless experience. Given that online ordering will be increasingly available, networks of stores with real-time shared inventory information can provide customers with a choice of destinations based upon inventory availability. With a similar demand for improved products, knowing the inventory status by store can become another differentiator. The ability to purchase online and pick up at a convenience store (perhaps via a drive-through) could be an attractive option in our post-pandemic world. An improved payment experience could take advantage of touchless systems and secure transactions. Connecting this to a loyalty program would yield increased basket size and wallet share. Additionally, new products like fresh and healthy food, quality coffee, or a branded quick-service restaurant can enhance brand value and increase sales. The goal: enhance product offerings from just convenience to convenience with high-quality service. One successful example is US food retailer Trader Joe's who boasts strong

customer loyalty. With limited product selection, product inventory turnovers are high and consistent with convenience store businesses. An alternative model popular in Japan relies on a smaller physical platform but more frequent daily inventory checks and stock delivery. A restaurant operation will increase time spent at a C-store location—and it's a useful feature for electric and hybrid vehicles. Similarly, coffee house operations are likely to create customers who don't mind a wait. Ancillary service offerings, like Amazon lockers for last mile delivery, to pick-up or drop-off orders can increase traffic to the location. An infographic presenting how connected commerce capabilities enabled by strong AI and technological architecture can empower convenience stores to create more hyper-personalized customer experiences. The gas station side of the business is more complex to reinvent. The fuelling part of the C-store business is evolving as charge time for electric cars changes. Fast charging from use of new battery technologies, like solid-state batteries, will make stopping to charge as little as a 10-minute task. In the shorter term, longer charge times will likely make convenience stores visits merely a top-up. This provides C-stores an opportunity to not only redefine their business model but also create new revenue streams. Larger locations can offer restaurants and perhaps lounges allowing drivers to wait while their cars charge. Newer cars will, in the future, require less charging. Local customers may charge their cars fast at home, but apartment dwellers will be a key target. To attract and retain these customers, C-stores can provide services like WiFi. The disruption in this space has begun and will rapidly change the C-store landscape. Now is the time to align your growth strategy to this transformation. The way forward is to align your business growth strategy to successful transformation. The disruption in this space has begun and will rapidly change the convenience store landscape. Now is the time to align your business growth strategy to this transformation. A few key aspects that can help address this transformation are: Experiential store to reinvent the guest experience through customer profiling, engagement, personalization, next-gen loyalty, and fuel pump re-imagination. Autonomous and intelligent operations to create capacity through efficiencies by inventory control, production planning, and autonomous stores. Frictionless omnichannel commerce and safe operations for the future. Investing in great talent. Designing Customer Loyalty Programs for Meaningful CX Deliver Experience First to Build Brand Value How ITV reinvented the streaming experience Superforecaster: Delivering Real-time, Automated Decisioning Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ======================

Using data in the quest for marketing's holy grail

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/tcs-interactive/white-paper/customer-data-platforms-hyper-personalized-experiences ----- Service Humanizing Technology to Create Iconic Experiences Highlights In this article Personalization at scale is possible Keeping up with content velocity Holy grail of marketing The way forward

Channelizing data to provide a one-of-a-kind customer experience With customers expecting nothing less than a hyper-personalized customer experience at scale, customer data platforms (CDPs) have assumed great importance. CDPs help marketers channelize data from digital and non-digital sources to reach the holy grail of data—a one-of-a-kind experience which serves the market segment of one. Since its emergence in 2013, CDPs were at the peak of Gartner's hype cycle in 2018. But what may have seemed like a hype has now become a high-growth sector, according to a research report by MarketsandMarkets, the CDP platforms market will be worth US$15.3 billion by 2026, up from US$3.5 billion in 2021. Here's why. CDPs provide a unified, consistent user experience and real-time data access, anywhere in the world. They guarantee easy data availability when needed rather than information being locked behind firewalls or dispersed across the globe. Some of the key features of a CDP model which help deliver personalized experiences are: Coordination: Construct and deconstruct data to enable easy coordination across different digital touchpoints and channels. Relevance: Decode customer preferences to build the foundation for 'next best action'. Adaptability: Analyze data to distinguish one customer preference from another. Key metrics to evaluate data for completeness with a focus on specific customer personas Delivering a personalized customer experience

can be tricky if not done with the right set of tools and strategies. It is also heavily dependent on insights into a customers' content consumption patterns (text, imagery, video, and sound) throughout their journey. Here, data velocity is key to keeping pace with content velocity. After all what is the point of being able to distinguish between two distinct audiences if they are served the same content. Imagine receiving travel information from an airline for a destination you have already travelled to. Seems rather pointless, doesn't it? This is where CDPs come in handy. They evaluate the data for completeness considering all the characteristics of a customers' persona. They also contribute to data completeness by providing insight into what would work on one channel versus another. For example, you could target consumers through high-cost channels based on their intentions rather than explicit customer data. Let's look at some key business metrics you can score with an optimal CDP in place. Explicit customer data Implicit customer data (insights based on customer intentions) Behavioral data Marketing campaign data Customer response data Communication log data A four-fold approach to evaluating an optimal CDP You are travelling to London on vacation and your entire travel needs are made available to you. From information on extra travel luggage capacity on the aircraft, to inflight meal plans, to hotel options nearest to the trendiest tourist spots. This connected experience is delivered to you courtesy a CDP which has access to your transaction history and provides suitable recommendations. CDPs here not only create one-to-one marketing opportunities but also optimize personalization by providing customers with the 'next best offer'. Optimization is the key as recommendations to customers are delivered in real-time across channels as well as based on the customer response and current context. Make no mistake, CDPs need to be leveraged wisely to generate practical, relevant, and complete data. When data is precise, better targeting is possible, resulting in a larger return on investment. Consider the following factors when evaluating a CDP best suited to your business. It should be: 1. Designed to operate in a hybrid cloud environment 2. Equipped to transform data into practical, relevant, and complete data   3. Capable of proactively responding in real-time to the needs of the business 4. Equipped to provide simplified data capable of delivering usable insights Adopting a CDP which best suits your business is key CDPs are constantly evolving and have much to offer in expanding the hyper-personalized customer space. It is important however to view the scope of CDPs from the right lens. Evaluate a model which offers the right measures towards providing bigger and better data across channels delivering access to a more mature marketing automation platform. Designing Customer Loyalty Programs for Meaningful CX How ITV reinvented the streaming experience Generative AI and its Impact on Marketing Step Inside the Studio Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ====================

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Customizing Offerings and Personalizing Customer Services

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Improve E-commerce Brand Experience with Personalization

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cater to not just customers but also their suppliers and partners. Owning the right data makes it possible for businesses to gather customer insights which will then simplify the customization process and improve customer experience further. Forge lasting connections between your brand and customers by humanizing technology. =====================

Generative AI and its infusion in marketing

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user interfaces, and more. They do this by leveraging highly personalized content across channels and customer touchpoints. Foundation generative AI (GenAI) models like ChatGPT and Midjourney are composable or built into an "enterprise AI platform" that can address many workstreams across enterprise functions. These generative models present a world of possibilities—they can be a creative assistant to humans, providing inspiration, ideas, drafts, and conversational responses. They can also fully automate complex work streams through integration with enterprise and web data sources. While they are already making a huge impact across industries, in this paper we will delve into how generative AI can transform marketing for enterprises and how proven innovation frameworks like the TCS Clay Map can accelerate that journey. Leverage TCS Clay Map to prioritize innovation and accelerate impact with generative AI. The TCS Clay Map is an innovation portfolio framework that allows an enterprise to map innovation ideas based on their ability to generate additional revenues through new customers and markets, and their requirement for new capabilities. Our Clay Map for generative AI-led innovation groups ideas by combinations of associated technology risk and business risk across four quadrants, as shown in the illustration below. Quadrant 1 typically comprises the here-and-now or 'derivative' innovations that allow a business to run more efficiently and effectively. These are ideas that utilize current capabilities for current markets and strengthen the core business. This quadrant involves jobs related to generative AI-conducted research (brand, market, and customer), assisting content developers with AI-generated new marketing and brand outputs, and enhancing customer support through autonomous chatbots. It includes providing hyper-personalized recommendations to customers based on their preferences, past purchases, and browsing behavior. Generative AI innovation or extension for jobs in Quadrant 1 will need to be assessed from an overall cost-benefit proposition, impact on society, and other concerns. The cost of training, operating cloud models, and operations should not outweigh the cost of people doing these jobs currently.   Quadrant 2 looks at leveraging new capabilities and business models to transform the current business. It utilizes innovative emerging technologies to address existing challenges. Examples of jobs in this quadrant includes developing a platform, enabling AI-generated content aligned with brand guidelines and accessible across the enterprise, streamlining ad creation and optimization, maximizing the effectiveness of advertising campaigns, and creating immersive brand experiences. Assisting creative designs with AI-generated ideas and variations for marketers is another possibility. Tommy Hilfiger is already doing it—it leveraged GenAI to engage customers in co-creation during the Metaverse Fashion Week, giving them the opportunity to design items in the brand's signature preppy style. Quadrant 3 is about extending current capabilities to new customers and new market segments. It could also mean partnering with new ecosystems and technologies to expand current capabilities to new segments, making them more widely accessible. Organizations that have a niche skill in any area of marketing or marketing tech could consider monetizing by enabling AISkills/AI-Plugins to AI models, thereby creating a new revenue stream. They can also opt for the creation of digital marketing assets at scale and monetization through licensing or creating self-service platforms. For example, Spectrum Reach announced a first-of-its-kind AI-powered platform that helps businesses create high-quality TV commercials,

that too with AI-generated voiceover, in five minutes. Quadrant 4 is about "new capabilities, new markets", 'Blue Sky', and disruptive innovation. Ideas in this quadrant are likely to significantly transform the entire industry, even the ecosystem. It may utilize one or more transformational technology, to develop a completely unmatched offering, or it may assemble a completely new capability from existing and known technologies. Quadrant 4 innovations tend to be longer-term and futuristic, with a potential for bringing in a significant and lasting competitive edge to the business. The possibilities in quadrant 4 will involve collaboration between AI brand strategists, key marketers, AI-generated products, and AI-generated influencers. They will also be about the creation of highly realistic and immersive virtual reality experiences that engage all senses. Users could explore virtual worlds indistinguishable from reality, interacting with virtual products, objects, and characters in unprecedented ways, which also offer marketers new ways to engage and generate user insights. BMW's 'The Ultimate AI Masterpiece' that leveraged AI and machine learning to turn a car into digital artwork is one example. Having analyzed and learnt from around 50,000 paintings encompassing the art history of 900 years, BMW's AI model generated entirely new works of art on the surface of a BMW 8 Series Gran Coupe. While the above Clay Map is a representative set of possibilities, companies can apply this to meet the unique needs of their industry. Mitigate generative AI risks with human oversight. Adopting generative AI comes with its own set of challenges and companies looking to ride the wave of this new technology needs to address them. Here are a few things they need to focus on: Training: GenAI models require extensive training data to produce accurate results. Obtaining such data can be time-consuming. Data security: Models often handle sensitive data, including personal or proprietary information. Malicious actors can exploit and manipulate GenAI, leading to cyberattacks. Bias: Models can exhibit bias introduced through training data, model architecture, or usage. Privacy: Privacy concerns may arise if user input becomes identifiable in model outputs. Hallucination: In what is referred as 'hallucination', models can produce factually incorrect content confidently. Misinformation: Can be misused to create fake, inconsistent content and damage reputations. Inappropriate material: Offensive content can harm reputation and lead to costly consequences, including defamation lawsuits. Ownership issue: Ownership disputes over training data or generated content can arise, raising concerns about intellectual property rights and copyright infringement. With proper human supervision, a set of programmable constraints makes apps respond with accurate information and establish connections with third-party applications safely. To mitigate risks, initial marketing experiments should prioritize public or minimally sensitive internal data. Personally identifiable information (PII) must be protected. Human oversight must be maintained on outputs at all times. The future is humans and AI working together. Agencies or marketing service providers looking to leverage GenAI need to first conduct an assessment of the potential impact on the fundamental business model, including short and long-term implications. Using TCS Clay Map framework to map Quadrant 1 to 4 activities for the entire marketing function to sub-functionals will help them easily assess the implications. While assessing each job, it is important to: The future of work in marketing will be symbiotic, with humans and AI working together. Companies need to prioritize and

reimagine marketing workstreams that have maximum value (like augmenting scarce skills) or automate tasks that are resource-intensive and take long to complete. In short, the goal should be to enhance human capabilities while embracing the new capabilities. Establishing cross-functional teams comprising members with expertise in marketing, legal, AI, design (reimagination), business go-to-market, ethics, and rapid prototyping is important to make the most of AI, ethically. It is crucial to consistently evaluate the balance between risk and value creation, while addressing AI safety concerns such as bias, privacy, data ownership, creative rights, and liability. Generative AI is here to stay and marketers should embrace it with an open mind. The generative AI value chain is developing and evolving. Numerous foundational models, application layer innovations, and infrastructure for extending the value of MLOps/AI ops are consistently emerging. Facilitate a sandbox environment for internal teams to conduct experiments and move towards assembling a marketing AI platform. By approaching generative AI with an open mindset and adopting the tools it offers, marketers can remain ahead of the curve. Generative AI Overcomes Data Scarcity and Drives Innovation TCS Announces Generative AI Partnership with Google Cloud and New Offering for Enterprise Customers AI-based Applicant-scoring Solution for Hiring the Best Fit Candidate Ethical AI: Building a Strong Foundation for Today and the Future Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

Experience 4.0: Next level CX to drive growth and loyalty

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how can you leverage ecosystems to your own advantage? Experience 4.0: What is it?   Experience 4.0 has evolved from Business 4.0™ and takes the current customer-centric paradigm and elevates it to include all stakeholders in the business ecosystem. When businesses understand their customers and the larger, dynamic ecosystem, they are able to provide seamless, highly personalized and delightful experiences each and every time—to all stakeholders. Experience 4.0 is a framework to craft futuristic customer engagements that are purpose-led, sustainable, immersive, inclusive, and contactless that drives experience-led growth & loyalty. The framework leverages a —"bridgital" ecosystem to bridge gaps between digital and physical worlds, various stakeholders, and ecosystems. It also uses ethical deep learning to personalize experiences. The goal is threefold: to drive growth; deliver on the brand promise and enhance the end-to-end customer journey.   The six features of Experience 4.0 focus on being purpose-led, sustainable, and emphasizes the importance of the ecosystem.   When businesses understand their customers and the larger, dynamic ecosystem, they are able to provide seamless, highly personalized and delightful experiences each and every time—to all stakeholders. NATARAJAN BASKARAN Hyper personalization engine: Build or buy? TCS Customer Intelligence & Insights™ Creating immersive experiences and reducing carbon footprint with XR Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ======================

Revolutionizing marketing with superforecasting

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catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Sandeep Banyal Principal Partner – MarTech, TCS Interactive-DX You have these already downloaded We have sent you a copy of the report to your email again. "Technology changes exponentially; organizations change logarithmically." As this article points out, this is a dynamic that marketing technologists wrestle with every day. It's especially true about the way AI technology is progressing faster than organizations can absorb its implication. And it has a direct impact on how enterprises deliver customer experience, which needs to be contextual as well as real time. With surveys like this one indicating that 55% of buyers will switch brands to get real-time superior service experiences and another one saying that acquiring a new customer is up to 25 times more expensive than retaining an existing one, the question is: Will organizations sustain business value by just delivering personalized experiences or will it require a 'superforecaster' engine to deliver real-time decisioning for evolving scenarios in a hyper-personalized environment? A 'superforecaster' is what we call a marketing technology (martech) platform's capability to make accurate predictions about customer expectations and responses. It will allow precise decisioning for unplanned scenarios as well as for expected outcomes. Superforecasting requires translating data into insights and using scenario planning to accurately predict what's next. Consider a financial institution aiming to predict stock market movements. Superforecasters in this context would be individuals or teams who meticulously study historical stock data, economic indicators, news, and market sentiment to make precise predictions about the future performance of specific stocks or the market. They might not focus on personalization but on providing accurate forecasts to inform investment decisions. Superforecasters often work with longer time horizons, aiming to provide insights that guide marketing strategies over months and years. Developing superforecasting powers is crucial for companies because it will enable real-time experiences that will make them stand apart from the rest. So, what can companies do to win and keep customers new and old? They can start by transitioning from rule-based martech tools to AI-driven forecasting of customer needs.   Reinventing martech platforms as superforecasters will involve integrating advanced predictive analytics, data science, and AI-driven insights to improve marketing and sales strategies, and the decision-making process. An illustration that shows how a martech platform in a closed ecosystem can foster effective and precise decision making by leveraging data lake or data warehouses for management of data, customer data platform to build customer insights, and real-time interaction engines to help make smarter decisions. The innovative concept of superforecasting seeks to revolutionize martech platform decision-making by fostering a closed ecosystem where

the synergy of art and science is made possible by integrating various platforms including: Data lake or CRM for management of data. Customer data platform to build customer insights. Real-time interaction engine to help make smarter decisions. Let's take a look at how each of these elements help make marketing organizations more innovative and drive greater results. Data lake or CRM for management of data Data and analysis: Varied and massive amounts of data will serve as the foundation block for a superforecaster. Customer profile data from various data sources including CRM, data lakes, lakehouses, and data warehouses will be mastered in the customer data platform. Predictive modeling: Using predictive modeling techniques, martech platforms can forecast customer behavior, market shifts, and campaign outcomes. This will allow marketers to anticipate changes and plan their strategies accordingly. Customer data platform to build customer insights Real-time insights: A martech-focused customer data platform will provide real-time insights into customer data, audience engagement, and real-time customer behavior. This will allow marketers to quickly adjust their tactics based on accurate and up-to-date information. Analytics: The martech-focused customer data platform can be designed to dynamically respond to changing market conditions more effectively by predicting which channels, campaigns, or segments are likely to perform best. Real-time interaction engine for smarter decisions Scenario planning: A real-time interaction engine could facilitate scenario planning by simulating different outcomes based on various inputs both in-plan and off-plan. Marketers can virtually test different strategies before implementing them in the real world. Real-time decisioning: Using artificial intelligence and machine learning, the platform can make in-depth customer decisions, understanding preferences, emotions, and buying behavior. This information can be used for automated decisions. Continuous learning: The real-time interaction engine could use machine learning to continuously improve its forecasting accuracy over time, refining predictions based on historical data and new insights. Essentially, reinventing martech platforms as a superforecasting platform will allow marketers to make proactive engagements with customers based on AI-driven decisions, predict market shifts, and optimize marketing strategies. The integration of these superforecasting capabilities in martech will increase the role of marketing in driving innovation and business success. A superforecaster will not just be limited to predictions or forecasts. An illustration showing the assembly line of algorithmic methodologies required to build a superforecaster. Forecasts can be transformed by superforecasters through a combination of rigorous methodologies, AI-driven analysis, expert insights, and continuous learning. The objective is to create an ecosystem where business value is centered around developing a delightful customer experience just when a customer wants it. Bringing to life a superforecaster that enables this will require use of continuous learning and a combination of rigorous methodologies, AI-driven analysis, and insights that make forecasts more accurate and effective, some of which are: Superforecasters can be a game changer for the marketing industry. The success and viability of superforecasters will depend on how the industry opts for AI and effective use of the technology across a long data supply chain within an organization. Systematic approaches, data analysis, diverse inputs, and a commitment to continuous improvement will make way for superforecasters and will give an opportunity for the industry to look beyond just real-time

enablement of data and insights. Define a clear roadmap for your martech stack How machine learning operations can fortify AI/ML Using data in the quest for marketing's holy grail Extending the real-time CDP with AI-driven personalization Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ======================

Take an experience-first approach to building brand value

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afford to neglect—customer experience. Customers expect to be wowed every time—and every moment—they interact with a brand. So each experience should be personal and relevant. It should be consistent and frictionless and capture a customer's attention at exactly the right moment, every time, and across every touchpoint. Marketing leaders know that delivering meaningful, memorable customer experiences will help them achieve their organization's business goals. They also know there's more to it than just a superior call center, an efficient omnichannel strategy, or personalized services. The best customer experiences require the confluence of science and art, data and contextual knowledge, and traditional and emerging technologies. They require profound customer knowledge, which can be obtained from deep ethical learning and technology integration, and continuously shaped by data-driven insights and artificial intelligence (AI).   We live in the experience economy, where customers are willing to pay more for experiences. First introduced in the late nineties, the concept of the experience economy, or the idea that an experience has real economic value, has finally gained credence. The value of an experience lies in the worth ascribed to it by a customer. As a simple example, there are plenty of people who are willing to pay more for movie tickets at theaters that offer premium viewing formats, luxury seating, and upscale dining and drink options—all of which add up to a superior experience.   Brands like Starbucks and Apple dominate the market largely because of the experiences associated with their goods and services. Whether you walk into a Starbucks store, order your coffee in a drive-through, use their app, or buy coffee from a retailer who licenses the Starbucks brand, the experience is always familiar, like a dear friend. As for Apple, it has always focused on innovation, design, and user experience—all of which have helped the company build a devoted customer base spanning across the world. With its 'unboxing' videos that became a trendsetter, the company added to the excitement of buying and owning an Apple product. What's driving the demand for experiences is a shift from product marketing to a greater focus on customer centricity. Younger generations are especially influenced by experiences. Studies reiterate what many now know—millennials would rather spend money on experiences than things. Some innovations and technologies have played a bigger role than others in creating experiences. Smartphones, for instance, have revolutionized how we live our lives and interact with others. And several new digital technologies, including virtual reality (VR), augmented reality (AR), AI, and natural language processing (NLP), are helping us create and enjoy experiences. Extraordinary experiences are contextual, persistent, and in-the-moment. Because we can expect the experience economy to wield influence for the foreseeable future, business leaders need to hone their strategies and practices to deliver extraordinary experiences and stay ahead of the competition. We see an extraordinary experience as the ultimate deliverable characterized by three things.   Contextual: Customers' experiences are extraordinary when they are contextual and relevant to their wants and needs. Brands can create these highly personalized experiences using data-driven insights. For instance, a diaper company might send new parents who are celebrating the birth of their child a short, instructional video about diapers in their social media feed, along with a QR code for special coupons. If this is of interest to them, the result is positive for both the company and the consumer. And that's an experience win for

the diaper company. Another example is that of hotels leveraging a customer's preferences to offer the perfect experience. Some hotels are updating their apps so they can turn customer-volunteered information into personalized experiences. You always want a room on the first floor with a king-sized bed? The reservation team will make sure that happens. Prefer to have chamomile tea in the evening? Housekeepers will be sure to place a few of those teabags in the room before you arrive.   To deliver this kind of targeted, contextual experience, brands need to understand who their customers are and what they want. A holistic view of a customer's profile and insights from historical data, along with all the interactions they have had with the customer, can be applied to engage them.   Persistent: When customers engage with a brand, no matter the channel or touchpoint, the experience must be consistent and frictionless throughout the entire customer journey. This isn't just about a similar look and feel, or uniform messaging and optimized fluid content. It is also about the persistent use of data. Persistent experiences increase customer loyalty because they elevate the trust customers have in brands. Companies score higher on brand recognition if customers encounter persistent experiences every time they engage with a brand, whether walking into a brick-and-mortar store, downloading and using an app, or following a social media channel. A good example of this is of a luxury goods company that enhanced end-user engagement with a persistent experience. By developing a phygital strategy for the company's digital and physical stores, it could establish a strong, compliant, recognizable, and consistent brand identity across multiple channels.   In-the-moment: In-the-moment experiences are straightforward. They are about engaging with customers at the right time, with the right message, in whatever manner they choose. This is more important than ever given the fact that customers are constantly bombarded with brands seeking their attention.   To create and deliver in-the-moment experiences, brands need to rely on insights from the data they have collected and analyzed on their customer base. Doing so will allow them to orchestrate the technologies they use to design, build, and grow customer engagements. Our work with a leading bank provides a great example of this. For the bank, we created an industry-first ticketing platform that uses machine learning algorithms to process data collected from various systems mapping commuters' journeys on public transport. Through an app that uses the data, the bank could create a frictionless ticketing and payments experience, and in real time automatically process payments without any cash, card swipes, or waving of a mobile phone at a kiosk.   While the characteristics of an ultimate experience are clear, organizations need to do more than focusing on just these three aspects to create that wow experience. Crafting exceptional experiences for modern-day customers requires putting experience first. Exceptional experiences require organizations to take an approach that harmonizes brand, design, technology, and data. Here's why such an approach is critical: Brands can inspire loyalty: Perhaps more than anything else, experiences have the power to lift or tank a brand. When customers feel positive during or after an engagement with a company, that good feeling can serve as a strong impetus for loyalty. Loyal customers grow brands. But a bad experience can have the opposite effect, and in particularly egregious examples, brands may have to pay dearly. There are numerous examples of bad experiences. A particularly famous one involved a song that went viral. While waiting on an airplane for his flight to take off,

musician Dave Carrol watched his band's guitars being tossed on the tarmac before they were loaded into the airplane. Upon arrival, he discovered that one of the guitars was broken. If that experience wasn't bad enough, Carrol spent months negotiating with the airline over the broken guitar. He got nowhere. Finally, he wrote a song that went viral. It cost the airline a lot more than expected: $1.4 billion to be precise. On the other hand, there are examples of great customer experience positively impacting a brand and helping it grow. One from our experience of working with clients is the brand boost that ITV, one of Britain's biggest television broadcasters, got from ITVX, its first-in-market freemium streaming service. TCS Interactive had designed and built the visual design for the service in nine months so ITV could launch it just in time for the 2022 FIFA World Cup, when millions of viewers tuned in. ITVX had just the right harmony of technology and design to enable a personalized, highly optimized experience for users. It earned one billion streams in April 2023, in just 4 months after going live. In the first month post launch, there was a 55% increase in streaming hours, and a 65% increase in online users. Read how ITV reinvents the streaming experience. Design ties it all together: Marketers have more tools than ever before to deliver great customer experiences. For example, there's VR, which immerses customers in virtual environments, and data analytics, which helps businesses know their customers better. But little of this is effective if you leave out design. In fact, design plays a pivotal role in every marketing endeavor, from the early stages of ideation all the way through every touchpoint in the customer journey. Design ties everything together—humanizing technologies, creating more personal connections with customers, fostering new areas of growth, and inspiring everyone in the ecosystem, including customers, colleagues, and partners. Technology and data drive personalization: Many organizations are already using marketing technology such as customer relationship management (CRM) software or marketing automation software. But modern marketing calls for more data-driven operations, and a customer data platform (CDP) can help. The platform can be used to collect, store, and manage customer data and offers a comprehensive approach to data access that is based on metrics to extract more value from data. Companies can also leverage digital experience platforms (DXPs). These can help brands build and personalize digital experiences. Integrated tools DXPs support can assist with content, commerce, and customer loyalty, empowering marketing teams, improving time to market, and increasing conversion and acquisition rates. In this age of AI, CMOs need to be prepared for the impact of AI on marketing. At a high level, AI can provide marketing teams inspiration and improve productivity. Marketers are already using AI to create content including videos and images. Despite AI's meteoric rise, especially after the advent of ChatGPT and other generative AI models, AI is still in its early stages. As it evolves, AI could be used to analyze and learn from vast amounts of data to better understand customer behaviors and orchestrate highly personalized experiences across channels and touchpoints. For the near future, success with AI in marketing will require a symbiotic approach, with humans and AI working together. The pace of technological innovation, the ever-demanding customer, and the velocity of business change have made this one of the most exciting times in modern marketing history. To create real value and thrive in today's experience economy and for the foreseeable future, organizations need to delight customers with iconic experiences that are

contextual, persistent, and in-the-moment. Experience 4.0: Next level CX to drive growth and loyalty AI customer analytics for personalized CX and operations ITV reinvents the streaming experience Measuring success in customer experience Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ======================

Envisioning purpose-led customer loyalty

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repeat purchases, and a steady stream of activities has traditionally worked well for loyalty programs. They have also benefited from third-party cookies. But these tactics no longer translate to brand commitment in these changing times. Also, unlike brand strategies, which have evolved extensively over the last decade, loyalty programs have been left behind. Today, brand strategy is focused on putting the customer at the center—connecting with them through personalized, relevant experiences exactly when they want them—and differentiating the brand from competitors. Loyalty programs need to catch up. They need to evolve into purpose-led programs centered on what customers want. Enterprises must reimagine them so they can gather rich insights from customers. They also need to be more seamlessly integrated with the customer's shopping experience (for instance, delivering benefits just when customers need them) and be better aligned with current brand strategies. The programs should focus on delivering meaningful services to not only boost customer retention but also build brand value. Building emotional commitment to the brand is key here. Figure 1 shows a loyalty maturity model that illustrates emotional loyalty as a journey comprising four stages—transactional, aspirational, belonging, and purpose. At the lowest level, or the transactional level, programs provide traditional incentives. As loyalty programs are modernized to deliver more value, they become intrinsically tied to purpose. An illustration of a loyalty maturity model showing emotional loyalty as a journey comprising four stages—transactional, aspirational, belonging, and purpose. As loyalty programs are modernized to deliver more value, they become intrinsically tied to purpose and lasting value. Customer loyalty and the value ladder An ideal loyalty program should resonate with a brand's values and align the program strategy with the brand's mission. This is especially true because nowadays, customers are more inclined to choose a brand with values that matter to them. According to this report, the majority (88-93%) of global consumers chose three factors as important to their loyalty decisions: products that fit their needs, good customer service, and competitive price. Of the less conventional factors, the three that rose to the top include alignment with who they are, personalized experiences, and helping them to connect with others. When the study was done, just 13% of consumers globally chose the feeling of being emotionally or personally connected to the brand as the meaning of loyalty. The concept of purpose-driven loyalty is more strategic and long-term than transactional loyalty. It is no longer just about customer retention but about inspiring customers to choose one brand over all others. We believe there are four pivotal elements to a modern customer loyalty program. These are incorporating a long-term strategy and vision aligned with an organization's strategy; designing an experience framework that enables the enterprise to execute its newly defined strategy and vision; customer data and technology; and implementing processes and technologies that enable it to collect data and better understand its customers. We believe there are four pivotal elements to a modern customer loyalty program. Here's a closer look at the four elements companies can leverage to reenergize their loyalty programs and climb the value ladder: 2. Create a framework to deliver experiences. To deliver experiences that build lasting connections, brands need to: A figure that shows four elements companies can leverage to re-energize their loyalty programs and climb the customer loyalty value ladder. By combining these four elements, companies can drive greater emotional engagement with

customers. Four keys to climb the customer loyalty value ladd 3. Leverage data and technology. Brands can use data to make personalized rewards for their customers. The challenge is breaking down the data silos that often exist in enterprises. As data is critical to creating meaningful offers and choices for customers, having a good, robust customer data platform is instrumental in building a successful loyalty program. By leveraging zero-party data (that a customer intentionally and proactively shares with a brand) and first-party data (information collected when customers interact with a site or marketing, or when they make a purchase) about customer behavior and preferences, brands will have insights to guide their customer loyalty strategies and ultimately have meaningful, deeper engagements with customers. This data can also help reinforce a brand's purpose. Tracking and measuring loyalty—specifically attitude and behavior—and assessing the stability of the customer base will help inform strategies to target different customer segments, from those who are truly loyal to those who are at a high risk of leaving. By closely analyzing the data, brands will be able to better distinguish between those two extremes. They will be able to discover customers whose loyalty is more superficial and driven by transactional aspects like accessibility or convenience rather than any emotional ties with the brand and strategize accordingly. Brands could use generative AI (GenAI) to create loyalty programs that are customized, contextual, and delivered at the right time. That could mean, for example, rewarding a shopper who has bought children's clothes for toddlers with loyalty points around the holidays, specifically for young children's toys. 4. Build organizational capabilities. Successful loyalty programs rely on creative and intelligent cross-functional teams. Organizations have to break down silos and enable the flow of data and information to harness the power of insights. They need to have the capability to use tools to collect rich customer data and analyze it quickly, perform customer segmentation and profiling, and even collaborate with relevant brands to create more meaningful experiences for customers. Building an organizational culture of collaboration and innovation is also crucial. Managers need to focus on employee experience by improving internal communications, giving them the right tools to act on real-time insights, empowering them to make decisions, and providing training to help them cultivate the right mindset and skills. All of this can add up to delivering a better customer experience and, in turn, drive brand loyalty. Modern loyalty programs should incorporate all these elements and orchestrate them harmoniously. By aligning strategy with the technology systems that manage processes and data and harmonizing all this with the stories that bring the brand to life, companies can create memorable experiences and build customer loyalty. Many successful brands are already using their customer loyalty programs to build deeper connections with customers. For example, the marketplace for a leading international hotelier's loyalty program has a collection of hyper-personalized products, services, and experiences that cater to its customers' travel needs. Using deep contextual knowledge combined with GenAI, the hotelier can expand beyond simple lodging and offer information about must-see attractions, custom turndown services, and other experiences. Another leading international hotel strategically leverages its deep contextual knowledge of its customers to help with their travel plans and make their visit memorable. For example, its online app gives options for exclusive personalized services, ranging from toiletries to room

essentials, based on the customer's previous track record and preferences. Not only does the hotelier mine customer data to better understand customer preferences, it also correlates that data with notable events that might entice customers to book rooms. When booking rooms around the time of the events, there are special discounts planned for them. The online app can also act as a networking platform, connecting guests interested in certain events. In the context of a global retailer, loyalty is furthered by catering to its niche customer segments. The brand invites customers for engaging experiences based on themes they are already inclined to—inclusivity, eco-consciousness, or minimalism. This way, the brand is able to show customers that it values them for who they are while also offering them a chance to connect with other similar-minded individuals. To broaden the horizon of customer engagement, brands need to develop an ecosystem of products, services, and experiences that encourages behaviors leading to sustainable outcomes. By leveraging zero- and first-party data to create hyper-personalized experiences and building strategic partnerships with various brands, they can offer customers more relevant experiences and services, creating new touchpoints and building lasting relationships. Hospitality jazzes up rewards programs to boost loyalty TCS Customer Intelligence & Insights™ for Retail Deliver Experience First to Build Brand Value Unified Promotions: The Future of Shopping Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ======================

Define a clear roadmap for your martech stack

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all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Sandeep Banyal Senior Martech Consultant, TCS Interactive You have these already downloaded We have sent you a copy of the report to your email again. Marketing technology is a multi-billion-dollar sector underpinning the modern, digital marketing ecosystem. Enterprises spent a staggering USD-120 billion on marketing technology solutions that increased to 8,000 from 150 in less than a decade. While much of this technology innovation is exciting, many CMOs are not entirely sure their martech investments are working out. In the past year, 83% of marketers have swapped out at least one marketing software application, which is not surprising as most brands and marketers only utilize 58% of the capabilities of their martech stack. It's like the old advertising adage: "Half the money I spend on marketing is wasted; the trouble is, I don't know which half." Customer experience (CX) is a differentiator in today's hyper-competitive marketplace and mandates razor-sharp precision in targeting the right customers and delivering a world-class experience. Your customers increasingly expect you to know who they are, what they want, and deliver contextual experiences. That said, how do you create and deliver personalization that matters and leads to differentiating journeys? What martech do you need to make it a reality? Start by defining the desired CX—uncovering required customer insights and turning them into real-time actions that can be scaled—making every step of the customer journey more engaging, valuable, and productive. While martech stack is a vital enabler, a truly personalized CX requires enterprise-wide commitment and collaboration. Successful brands make their entire business customer-focused because the customer journey spans from product design and development to marketing, sales, service, support, and finance. CMOs across the globe face the same challenge with martech —it is underutilized, siloed and there is an ever-growing abundance of choice. A siloed martech stack makes it extremely difficult for business functions to work together, create and respond on actionable data for a seamless, personalized customer experience across the end-to-end customer journey. Here's a simple, three-step process to help you tide over this problem: With many martech stack options, marketers might have a hard time to decide which stack works best for your business. A few crucial questions to consider when evaluating options include: When evaluating your existing martech platform for its operational gains, you also need to consider the value it will deliver for three, key stakeholder groups: Every brand is unique but they all need to quickly demonstrate a measurable ROI. By adopting a holistic evaluation approach, coupled with a critical view of existing capability, companies will be able to unlock the inherent value of their martech that delivers superior, unmatched customer experiences.

Designing Customer Loyalty Programs for Meaningful CX Deliver Experience First to Build Brand Value How ITV reinvented the streaming experience Superforecaster: Delivering Real-time, Automated Decisioning Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height

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AI technologies help brands meet customers with a human face

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While AI is commonly seen as a way to cut costs by automating labor, it has a capacity to expand existing CX capabilities. Improving customer experience in most industries will require humans not only stay involved but engage with customers in new ways. That's where these new, intelligent technologies can be most useful: in enhancing, not replacing, the human face the enterprise turns toward its customers. According to a National Retail Federation survey, about 40% of retailers are implementing some form of intelligent automation, and more than 80% plan to do so by 2021. A large majority is still focused on leveraging these technologies to automate labor and thereby reduce operating costs. And, whether they realize it or not, that's a risky approach. Companies that successfully use advanced intelligent technologies to enhance human capabilities, do so with a human-centric, machine-first strategy focusing on transformation of business processes that impact the customer experience—marketing, sales, and post-sales customer services. Take marketing. Leading firms have personalized offers to customers based on who they are, where they are, and what they like, based on past purchasing patterns. In sales, AI-enabled systems can present the customer with products that would not be obvious to a retailer's merchandizers. For example, Walmart is using AI to tailor its stock based on store location and its analysis of local area consumers' shopping histories. Royal Caribbean International rolled out its Ocean Medallion wearable devices that allow guests to unlock cabin doors, and pay for drinks and food, giving Royal Caribbean's employees more time to respond personally to customer needs and desires. In the customer service area, AI and machine learning systems can quickly route the highest-value customers to the most knowledgeable, capable people to resolve customer issues while providing enhanced insight to customer-service agents, shortening the time it takes to resolve problems. The examples cut across industries. Swedish Bank SEB uses a virtual assistant to manage natural language conversations. In the 30% of cases where virtual assistant is unable to address an issue, it automatically turns the call over to a less-burdened, less time-constrained human call center representative. New, intelligent technologies can be more useful enhancing, not replacing, the human face the enterprise turns towards its customers. Taking the Machine First approach requires assessment of data collection, data management, and analytics capabilities. Smart systems need huge volumes of highest quality, accessible data. One valuable vehicle for retrieving this data is loyalty programs, in which customers share their purchasing data with companies in return for rewards. Once a company understands where and how its customers' experience can be improved, it should employ an agile approach, including the end-user feedback while using data to understand customer interactions with business, and design a customer journey. This process will help companies evolve in real-time a process of continuous innovation and delivery (CI/CD) to ensure the customer experience is refreshed in real time. Finally, the company must redesign jobs and train its people to provide a superior, AI- and analytics-enabled customer experience while making sure to meets its customers with a human face.   While these technologies help

companies keep up with the rapid pace of change, only people, armed with human insights provided by machines, can provide a customer experience that will resonate with people even as it evolves to keep pace with their ever-changing needs and desires. Set your purpose of projects experimenting with AI, machine learning, and analytics, to extend capabilities of your workforce so they in turn can help improve the customer experience. Designing Customer Loyalty Programs for Meaningful CX Deliver Experience First to Build Brand Value How ITV reinvented the streaming experience Superforecaster: Delivering Real-time, Automated Decisioning Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height

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Make CX the X factor in your growth story

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Equifax reshapes CRM with Salesforce platform

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our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Increase Increase Savings Savings The CRM transformation helped Equifax improve productivity and user experience Iconic designs Digital experience Insights-driven marketing Experience-first commerce AI-enabled measurement Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. GDPR compliance requirements set the stage for transformation of legacy IT systems Leading global consumer credit reporting agency Equifax Ltd. was using multiple legacy systems to provide credit-related services, such as Oracle's RightNow for case management and day-to-day activities and Lotus Notes for financial operations. The US-based company needed to host data relating to consumers in Europe in the same geography for GDPR compliance. It decided to use this opportunity to upgrade its legacy systems and transform the CRM environment to support its purpose of helping people live their financial best by providing information about managing credit scores. TCS drove additional value by implementing a Salesforce CRM platform to improve CX TCS helped Equifax convert a regulatory requirement into a CRM transformation initiative. It recommended a Salesforce Service Cloud implementation for case management and for creating workflows for resellers and customers. Apart from meeting GDPR compliance with a go-live solution, TCS enhanced user experience with a responsive and dynamic UI with mobile device support. TCS established business processes across the group while providing a single view of the customer. Rationalizing and categorizing FAQs helped cut the clutter, providing a better customer experience and reducing complaints. An integrated dashboard for resellers helped them track requests easily and quickly, while custom reports provided insights on customer experiences, agent productivity and compliance. We are thrilled to have TCS as our partner in this transformation journey. Stephen Cohen The finance processes for generating

invoices were optimized, driving efficiency and better agent productivity. TCS also helped Equifax by porting Lotus Notes functionality into Salesforce within three months. TCS leveraged its contextual knowledge of Equifax's ways of working to take up an advisory role and drive effective change management and quality assurance. GDPR compliant platform for operations support Improvement in agent productivity through workflow automation Saved on Lotus Notes license costs Case reduction for query cases The CRM transformation helped Equifax improve productivity and user experience TCS provided a cost-effective, cloud-based system with improved scalability and business continuity. The standardized business processes improved business decision making with KPI measurements and actionable data insights for continuous improvements.   01. Iconic designs Create bold, intuitive, impossible-to-ignore designs for the future. 02. Digital experience Deliver omnichannel, immersive, hyper-personalized experiences using the latest technology. 03. Insights-driven marketing Bring to life digital products and services that make a difference with insights-driven marketing. 04. Experience-first commerce Transform the buyer experience to convert visitors to loyal customers and ultimately to brand advocates. 05. AI-enabled measurement Measure the effectiveness of your marketing investments by leveraging third-party data, advanced analytics and AI-enabled platforms. TCS AI Native Telco Offerings Vodafone UK Collaborates with TCS to Enhance Business Agility, CX TM Forum DTW24 Ignite: Key Takeaways from the Global Event TCS-TM Forum Knowledge Report: Setting up Telecoms LLMs Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ======================

DuPont E&I streamlines customer service

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countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Integrated platform improves customer experience, enables data-backed decisions You have these already downloaded We have sent you a copy of the report to your email again. DuPont is a global technology leader, serving industries including electronics, transportation, construction, water, healthcare and worker safety. DuPont applies diverse science and expertise to help customers deliver essential innovations and aims to be valued as their 'partner of choice'. DuPont Electronics & Industrial (E&I), one of DuPont's three businesses, identified an opportunity to increase the efficiency and effectiveness of its service and support as part of its commitment to be a partner of choice. Multiple DuPont E&I teams are often involved in engaging directly with customers, depending on their needs. With legacy applications spread across multiple systems, it was becoming increasingly difficult for DuPont E&I to have a comprehensive view of customer requests and issues. Support monitoring and service metrics reporting was a challenge as data needed to be merged and transformed from all the disparate systems. The business wanted a unified platform to capture customer requests and issues, and route them to the applicable teams while providing a holistic view of the corrective and preventive actions to be taken in real time. When presented with these challenges, the TCS team worked with DuPont E&I to identify the underlying issues and designed a solution that could be globally scalable while catering to local needs. To ensure that the application would help grow business over time and support an omnichannel digital experience, the TCS team targeted key areas for immediate benefit as well as future capabilities. TCS designed, built and deployed the Salesforce Service Cloud, Quality Case Management processes and Customer Community Cloud. These solutions, in conjunction with their e-commerce solutions, leveraged existing CRM best practices while enabling the standardized business service capabilities on the platform, providing a broader view of customer inquiries in allowing business teams to make data-driven decisions and support teams to resolve customer issues more quickly, accurately and efficiently. The solution is allowing DuPont E&I to gain a more comprehensive view of customer requests across various service-related touchpoints such as inquiries, orders, and issue management. The solution is also helping to manage all requests and issues in real time through service and status reports and

dashboards. This is increasing productivity and reducing efforts by minimizing repetitive tasks with the help of features such as quick text, templates, and macros. DuPont E&I continues to expand their use and capabilities of Salesforce Service Cloud, Customer Community Cloud, and e-commerce solution to enhance customer experience. TCS helps DuPont transform customer support and enhance productivity with Salesforce TCS' suite of solutions has resulted in: 01. Iconic designs Create bold, intuitive, impossible-to-ignore designs for the future. 02. Digital experience Deliver omnichannel, immersive, hyper-personalized experiences using the latest technology. 03. Insights-driven marketing Bring to life digital products and services that make a difference with insights-driven marketing. 04. Experience-first commerce Transform the buyer experience to convert visitors to loyal customers and ultimately to brand advocates. 05. AI-enabled measurement Measure the effectiveness of your marketing investments by leveraging third-party data, advanced analytics and AI-enabled platforms. Future proofing IT for Urban Air Mobility and eVTOL operations How TCS is Supporting GM's Electric Vehicles Development The connected automotive ecosystem TCS Manufacturing AI for Industrials Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

Liquid Intelligent Technologies optimizes sales processes

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extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. The leading African communication solutions provider wanted a digital business transformation to increase market share and become a leader in the telecom and technology domains. To stay relevant and efficient, it needed to optimize its sales processes by standardizing and automating its configure-price-quote (CPQ) process, and implement a faster go-to-market strategy for new offerings. Liquid Intelligent Technologies had a vision to enable a single sales platform for all its operating companies, centralize product catalogs, introduce new products, and find a way to capitalize on its existing investments in the Salesforce platform. TCS' in-depth knowledge of Salesforce and the CloudSense platform helped transform the Liquid Intelligent Technologies' sales process. The solution was designed to leverage the client's existing Salesforce capabilities to avoid redundancy. The existing sales processes and product offerings were reshaped to make them seamless while allowing for greater flexibility and future replicability. TCS consolidated the catalog and restructured Liquid Intelligent Technologies' products through the CloudSense CPQ implementation. This allowed the end customer to get faster feedback and a better sales experience. The manage, add, change, delete (MACD) process was optimized for easy management of existing customer services. TCS automated key features such as customer order form approval and digitized customer consent processes by enabling the Click 2 Approve feature. The solution improved the company's user experience by upgrading their existing Salesforce platform to Lightning. This project also required TCS to seamlessly migrate nearly 100,000 customer services from Salesforce to CloudSense using TCS' SFDC-CS migration utility. In addition, TCS' Secure Borderless Workspaces™ (SBWS™) ensured secure access to work environments and maintained confidentiality without any business disruption during the pandemic. The technology company has been able to increase market penetration and drive revenue growth. With TCS' solution, Liquid Intelligent Technologies has improved customer experience by unifying the product catalog and implementing an enhanced, transparent, and replicable sales process. Reduced order processing time from ~2 days Person-hours saved every month 01. Iconic designs Create bold, intuitive, impossible-to-ignore designs for the future. 02. Digital experience Deliver omnichannel, immersive, hyper-personalized experiences using the latest technology. 03. Insights-driven marketing Bring

to life digital products and services that make a difference with insights-driven marketing. 04. Experience-first commerce Transform the buyer experience to convert visitors to loyal customers and ultimately to brand advocates. 05. AI-enabled measurement Measure the effectiveness of your marketing investments by leveraging third-party data, advanced analytics and AI-enabled platforms. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA TDSG Embarks on a Business Transformation Journey with TCS Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height
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ITV reinvents the streaming experience

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your email again. UK's first integrated advertising and streaming platform In September 2023, British broadcaster ITV accomplished a first-of-its-kind feat. One of its reporters became the first person to do a weather forecast atop the London Eye, 135 meters up in the air. The achievement was not only daring, but also imaginative and altogether in line with ITV's purpose: to use the power of creativity to connect with people and make content people can't get enough of. ITV's purpose is also the impetus behind another first: ITVX, the United Kingdom's first integrated advertising and subscription streaming platform, offering free content with ads and ad-free content with a paid subscription, all in one place. Remarkably, the service took less than a year to develop and launch; ITVX went live during the 2022 FIFA World Cup, giving tens of millions of viewers an integrated, first-rate user experience from the start. TCS was ITV's partner of choice to design this first-of-its-kind service in the United Kingdom. The partnership, built on a shared mission and common objectives, was what made ITVX possible in what Deep Bagchee, ITV's chief product officer, acknowledged was a "really short and tight timeline from the moment we conceptualized this product." "TCS Interactive really understands what good collaboration is all about, and we had real harmony between our teams. That's the only way you can get such a challenging project done in such little time," said Bagchee. A streaming service that's fit for purpose ITV is one of Britain's biggest television broadcasters. Prior to the launch of ITVX, the broadcaster had a simple but effective catch-up TV service, ITV Hub, and BritBox, a subscription service. As the market matured and demand for streaming was growing exponentially, the time was right to merge the two services into a single, scaled-up content destination that gives ITV the flexibility to offer free and paid content so it can widen its appeal and increase revenue across subscriptions, ads, and sponsorships. "We wanted to create a new streaming-first proposition that was really fit for purpose for this new streaming age," said Bagchee. ITVX is a cross-platform entertainment destination of connected TV products, the web, and mobile apps. It was designed with an integrated system of components and user experience (UX) deliver consistency and let viewers pick up where they left off, no matter the device. A unified, balanced, and personalized service From the start, TCS' digital services business, TCS Interactive, worked to ensure that the viewer experience would be maximized during each engagement. Using UX design patterns, TCS Interactive created interaction points for customers that would make it easier for them to find the content they wanted. ITV wanted to dramatically increase its content catalog from 1,500 hours to well over 15,000 hours, and it was important to make sure that all this content, both live and video on demand (VOD), was showcased in a way that was easy to discover and watch. "We really wanted to strike a balance between the curation of thousands of hours of content and personalization," said Bagchee. So, a design began to coalesce around the idea of rails of content that were editorially curated but created in a way that viewers could easily find preferred content or content that they'd already started consuming. The key: connecting viewers to the content they love while also creating a destination for discovering new and fresh content. The home page features free, ad-supported live and video content, along with VOD. A Live tab lets customers see all of ITV's live content, as well as 12-13 themed live channels that focus on a single show or theme and are supported by ads. The tab also includes a familiar programming guide. Taking its cue from the newly

developed ITVX brand, a cross-functional team of ITV and TCS Interactive associates worked together to create an impactful visual design. The X is a distinguishing symbol not only in the logo but also as part of an immersive graphic flashing on the screen, and a striking color palette and standout design language capture the viewer's attention and help amplify the brand. "There are all these things we have to do as a public service broadcaster— age-gating within our product, providing subtitles, providing news and local content, and we had to make sure we got all these bits right within this short period of time," recalled Bagchee. TCS Interactive brought the right amount of pragmatism to the project to meet ITV's business requirements, and the design acumen to push boundaries. "One of the best things in working with TCS Interactive is the fact that they'd done the 10-foot experience (of television). They had designed television apps, which is really a unique space that requires slightly different thinking than designing a web page or a mobile app," said Bagchee. A great user experience Just four months after going live, ITVX had delivered one billion streams and more than 2.7 billion one year later. Today, the service has over 40 million registered users. Moreover, 88% of viewers who watch a premier go on to watch other content, and 216 of ITVX's programs have been watched by a million viewers or more. "We are now, both in terms of our monthly active users as well as our streaming hours, up massively from where we were with ITV Hub," Bagchee confirmed. "In terms of both our digital revenue as well user engagement, people are watching more content, coming back more often, and watching for longer, which is really what this project was about." There are more than just numbers to support ITVX's success. ITV did a lot of qualitative research, speaking to customers to get their feedback. Overwhelmingly, people said it's a great user experience that is very different than what they'd seen from ITV before. "With ITVX, we reinvented ITV for the streaming age," said Bagchee. "Now I'm sure all of the competition will be trying to catch up." TCS' data streaming services with Amazon MSK TCS joins the living heart project to create accurate digital human heart models TCS Recognized as a Leader in Network Transformation and Managed Services by Everest Group Elevate the customer experience so your business can thrive Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

"This is Our DNA": TCS Interactive

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the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. At TCS Interactive, a strong design thinking approach plus wide-ranging expertise – from research and analytics to content and design, from UX to prototyping and engineering – helps us create game-changing digital experiences. You have these already downloaded We have sent you a copy of the report to your email again.   "We have an enormous set of skills and a passion for collaboration." —Scott Daniels, Head of Studios, TCS Interactive Design thinking. Video and graphics. Content and design and UX. Prototyping and engineering. Research and analytics. Digital marketing. Here's a quick take on the things we do at TCS Interactive to create powerful new digital experiences. Designing Customer Loyalty Programs for Meaningful CX Deliver Experience First to Build Brand Value How ITV reinvented the streaming experience Superforecaster: Delivering Real-time, Automated Decisioning Theme Font size Line height =====================

Making a Chatbot Seem (Almost) Real

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From Vision to Video: Your Ideas in Action

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The era of AI experiences

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extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS TALKS TECH You have these already downloaded We have sent you a copy of the report to your email again. TCS North America's John O'Leary and Andrew Corcione discuss how generative AI can help enterprises overhaul customer experience. In season 2 of our podcast series TCS Talks Tech, hosts John O'Leary and Andrew Corcione explore how GenAI is transforming customer experiences. John and Andrew talk to marketing experts and senior leaders from across TCS Interactive's diverse range of customers and partners, including major brands such as Marriott, Humana, Infineon, and the Lloyds Banking Group, among others. The podcast guests share their personal journeys and perspectives around the new age of AI that is challenging marketers to deliver the consumer and business buyer experiences of the future. Our guest speakers this season include: Tune in to their episodes below! Episodes 01. Exploring the era of AI experiences with John O'Leary and Andrew Corcione with John O'Leary and Andrew Corcione 02. What a modern marketer needs to be with Greg Stuart with Greg Stuart 03. Helping AI make a difference in human healthcare with Holly Kessinger with Holly Kessinger 04. AI as an enabler of B2B customer experiences with Kumar Vanapalli with Kumar Vanapalli 05. Why we won't think about AI in five years with Joe McKendrick with Joe McKendrick 06. AI will scale, humans will think with George Cairns with George Cairns 07. AI in action with Ronak Doshi with Ronak Doshi 08. Understanding customers as people with Amit Manurkar with Amit Manurkar TCS Talks Tech: A Series on Digital Twinning and Emerging Technologies Digital Twins: Rehearsing the Future AI for Business Study: The Combined Power of AI and Generative AI AI Optimism and Transforming Workplace Experience in the Future Sign up to receive more updates frpm TCS NA Theme Font size Line height ======================

Your cloud, your journey

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drive their edge-to-cloud transformation and deliver greater business outcomes. 05. Enterprise Cloud With a future-ready hybrid cloud strategy and innovative cloud services, TCS helps clients gain a competitive edge and business agility. Future-proof your business with solutions tailored for you. BASF makes big strides in digital farming with AWS Cloud United Airlines all set to fly higher Woolworths takes a fresh approach to data-driven retailing DuPont makes its HRM system more employee-friendly Get it right the first time with a cloud business case Maximize value with a clear hybrid cloud strategy The enterprise-as-a-service (EaaS) approach to simplifying cloud Automation is your cloud protection keystone TCS Positioned as a Leader in the IDC MarketScape for Worldwide Microsoft Implementation Services ISG recognition IDC MarketScape honors TCS Leader in IDC MarketScape Theme Font size Line height No matter where you are on your cloud journey, we can help you get maximum value from it.
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DuPont Enhances Employee Experience

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walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS and Microsoft Cloud / Case study SUCCESS STORY TCS helps DuPont Speciality Products digitalize its HRM portfolio You have these already downloaded We have sent you a copy of the report to your email again. DuPont wanted to create a better experience for its employees. A simple thing like access to leave information can improve employee experience. But for the Speciality Products division of DuPont, one of the world's largest producers of chemicals and science-based products, its legacy human resources management (HRM) system made the year-end maintenance process lengthy and tiresome. Also, the application was not very user-friendly and required several manual steps. There were other challenges such as: The company realized that bringing in automation to improve efficiencies was the way forward. TCS helps DuPont Speciality Products make its HRM system more user-friendly DuPont Speciality Products worked with experts from TCS' Microsoft Business Unit (MBU) and leveraged solutions such as Microsoft 365 and Microsoft Power Platform to completely modernize its HRM portfolio. Our solution also provided DuPont scalability with a platform that supports low code, no code technology. Here's how we helped solve DuPont's challenges: Modernized global leave system leads to happier employees and savings. Thanks, TCS team for working with us toward the path of digitalization. Sukhendu Bandhu, Global IT&P Service Delivery Leader (Collaboration & Shared Services), DuPont Speciality Products Lots of good work and finally it's making life easier for employees. Mukesh Tare, Global IT Service Delivery Senior Manager, DuPont Speciality Products Malaysia Airlines transforms IT services TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Re-energizing Customer Loyalty at AGL

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innovate to meet customer expectations. TCS helps AGL navigate regulatory changes in a multi-year transformational journey. TCS helps AGL improve digital uptake and enable customer experience transformation. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. As an industry leader, AGL is committed to developing innovative and personalized solutions that put power back into the hands of the people who really count - its customers. Continuous innovation is critical to its mission to make energy - alongside other essential services - simple, fair and transparent. This is particularly true in a time of disruptive regulatory changes, demanding a shift from mass retailing to personalized retailing in order to create a superior customer experience. TCS implemented a successful digital transformation initiative and upgraded internal systems at AGL to a future-ready state. Our expert understanding of energy industry trends, along with our Machine First™ Approach helped AGL shift from mass retailing to personalized retailing at scale. These digital-led initiatives, including single sign-on and connected links, created intuitive self-service options for internal AGL customers to stay connected. This transformation program was delivered across digital sales, products and pricing to improve customer experience through collaboration and self-help services, as well as re-engineer operations through automation, including a virtual service desk assistant and self-healing tool NextThink. Brett Redman, MD and CEO, AGL Energy, says, "We've enjoyed a successful strategic partnership with TCS that has always been open and transparent. We've always shared our successes as well as our failures, and that openness, along with the quality of TCS services, is what has made TCS an invaluable partner for more than 10 years." TCS helps AGL improve digital uptake and enable customer experience transformation. With zero downtime, AGL has expanded to the Western Australian gas market ahead of its competitors. It has also created new business models for intermediary sales through tie-ups with builders and online realtors, establishing bulk new connections. TCS has demonstrated a deep understanding of AGL's technology needs BRETT REDMAN Powering change for utilities with cloud TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy

Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Cloud migration helps Foxtel cut technology costs by 60%

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list. It included creating a highly robust disaster recovery regime, driving greater agility across business operations, and reducing costs at the same time. It required approximately 300 business applications across more than 1,000 servers to be migrated to cloud. As the primary technology partner, TCS helped Foxtel reimagine its enterprise technology landscape across all applications, data, infrastructure, and security with automated cloud migration and modernisation services to unlock efficiencies, deliver future architecture, drive business growth, and achieve sustainable value. TCS developed a cloud migration strategy to help Foxtel analyse its application landscape quickly. It helped Foxtel leverage AWS to transform its digital landscape and exit its Sydney, Melbourne, and Gold Coast data centres. As the AWS Application Transformation and Migration Partner of the Year, TCS executed Foxtel's cloud journey in three phases—the first was to modernise their app, followed by establishing a cloud operating model. After this, TCS started conversations with Foxtel regarding application lifecycle automation and app modernisation. The TCS solution facilitated innovation, ensuring business resilience. It automated the creation of AWS landing zones, which works as a starting point from which Foxtel can quickly launch and deploy workloads and applications confidently. The solution helped define, design, and deploy cloud foundations on AWS that helped Foxtel business achieve the right balance between governance and the freedom to build new applications in future. The TCS Migration Factory on Google Cloud, an accelerator that helps simplify, automate, and secure migration processes, was used to plan and automate application migrations to AWS. With this project, TCS has propelled Foxtel's vision to provide availability and reliability to their business applications in a very competitive media industry. Furthermore, a flexible, agile, and resilient cloud platform means Foxtel can now provision for its systems within hours instead of days. With the move to AWS, TCS helped Foxtel reduce its technology costs by 60%. Here are some of the other major benefits for Foxtel: Progressive organisations such as Foxtel are partnering with TCS to drive their multi-horizon cloud transformation journeys on AWS to become more resilient and agile, and to accelerate their innovation and growth. As our strategic partner, TCS provided Foxtel with ready-to-use, quick-start deployment templates and automation to accelerate our cloud migration. DAVID KEMP Enabling farmers to make smarter choices TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Hach digitizes supply chain

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management and role-based simulation capabilities. Advanced and intuitive planning capabilities helped monitor and improve demand and supply planning KPIs, enabled multi-model forecasting and exception-based planning to make the supply chain customer centric and responsive. TCS expedited change adoption by bringing in education, documentation and hands-on experience that helped the client ease into the digital day-in-life of a planner and enabled smooth onboarding of newer planners. TCS executed the project by adopting the cloud transformation methodology and the program was governed through a visual project management process. Enabling supply chain planning on cloud through end-to-end digitization Holistic supply chain visibility helped establish global business standards and practices for better internal alignment and decision-making. Improved response to market demands and regulatory requirements enhanced the overall customer experience. Greater supply chain resilience supported COVID 19 simulation and scenario planning during the global pandemic. On-time delivery (OTD) from 93.3% previously Inventory turns from 0.2 previously Mean Absolute Percentage Error (MAPE) improved forecast accuracy The partnership with TCS to reimagine supply chain has been critical to our success Michele Van Krieken Susan Blesener Rex George Vinayak Gole Nikhil Patwardhan No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Forth Ports Crafts an Industry-first Solution

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we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS mines real-time data using cloud-based Azure platform for customized insights You have these already downloaded We have sent you a copy of the report to your email again. Forth Ports wanted to modernize and develop a new fit-for-purpose analytics solution. Forth Ports is a leading port operator in the UK and has a long-term partnership with TCS for key IT projects. In 2019, Forth Ports decided to modernize their data management to develop a new fit-for-purpose analytics solution that will provide predictive market insights and support operations. The ports company was keen to align the insights gained with business goals of greater agility and better customer experience. TCS leveraged Azure Data Platform and Power BI to develop an analytics solution. TCS helped Forth Ports evaluate several leading analytics platforms, and finally decided on Azure Data Platform and Power BI as the best-fit options. To build the industry-first, public cloud-hosted analytics solution, Forth Ports and TCS worked together to develop the Azure foundation. The foundation was leveraged to deploy an analytics solution based on Azure-native platform-as-a-service data services. The solution helped draw data insights from existing and new data sources covering a range of port operation areas. A new data warehouse was established and a number of data models were developed to facilitate data insights and self-service analytics. The focus areas included gate performance, vehicle booking system analysis, throughput analysis, vessel productivity and market intelligence, together with new commercially orientated support facilities including 'what if' scenarios. Forth Ports accelerates decision making with next-gen analytics solution. With Azure based analytics solution, Forth Ports now enjoys: TCS, by its very nature, is a progressive organization and always at the fore front of new technology. DAVID THOMSON TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud TCS Digital Mortgage Suite: Driving Growth with Better CX No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Cell C Boosts Learning, Skills & Efficiency

Challenge Solution Related reading Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Outdated and insufficient training diminished sales and customer service effectiveness. TCS deploys a robust LMS to provide end-to-end training management. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cloud-based Learning Management System enhances employees' skills, drives overall productivity You have these already downloaded We have sent you a copy of the report to your email again. With frequent new products and services launches, C Cell struggled to train their customer care agents, franchisees, and sales personnel with the requisite skills and knowledge. Their Learning Management System (LMS) had limited capabilities and flexibility, and could not keep up with the frequent and copious upgrades. The poor training, coupled with limited budgets and the absence of a centralized system, made it hard for sales and customer service to do their jobs effectively. Additionally, many processes were conducted manually, making training reports a time-consuming and complex process.   TCS implemented a comprehensive, cloud-based solution to manage Cell C's training needs, with centralized content delivery and management. We deployed Oracle Taleo Learn Cloud Service, which allows for frequent

training updates and provides easy access to a knowledge repository with the latest product information. We migrated basic organizational information and employee data from the existing system to the new, cloud-based one. Our solution supports all education models and provides a single, unified learning delivery system for Cell C's extended enterprise of employees, customers, and partners. Instructor-led trainings, which are location-specific, were charted to a map of the country so learners could enroll for the courses in a convenient location. We provided role-based control and access to programs for Cell-C and incorporated powerful features to track attendance, publish calendars, manage enrolments, evaluate courses, take assessments, and provide feedback. Through forums and chatrooms, resource and credit management, and advanced reporting functions, the solution drives employee engagement and stimulates skill development. TCS helps Rail Delivery Group build a platform to monetize data The Role of AI in Revolutionizing Supply Chain Management Delivering Personalized Digital Experiences with Zero Party Data TCS at NRF 2025 No matter where you are on your cloud journey, we can help you get maximum value from it.
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ABN Amro goes Beyond Banking

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/case-study/abn-amro-tcs-collaborate-beyond-banking ----- Challenge Solution Maarten Spit, Head of Enterprise Integration Technology, ABN Amro Related reading TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. ABN Amro wanted to prepare itself to go beyond PSD2 compliance. TCS partnered with ABN Amro to implement an Open Banking solution through Product and Architecture consulting Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help

you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS partners with ABN Amro to launch Open Banking Platform You have these already downloaded We have sent you a copy of the report to your email again.   ABN Amro wanted to comply with the recent European Legislation - Payment Services Directive (PSD2). This legislation impacts the way customers pay online to what information they see while making a payment. It also requires banks to provide customers' data to other organizations. Beyond PSD2 compliance, ABN Amro looks at opening up more valuable APIs and use those of others. The goal was to set up a Cloud-based Open Banking platform to speed up, create beyond banking experiences, explore new business models and innovate finance together. TCS partnered with ABN Amro in its digital transformation to Open Banking, using API's. Rather than viewing Payment Services Directive (PSD2) as another regulation, ABN Amro saw it as an opportunity to radically improve its digital offering. The journey began with selecting the right API management solution. ABN Amro then chose to build a Developer Portal which provides external developers with everything they need to use the bank's APIs effectively and productively. The site provides a number of APIs for commercial clients. This makes ABN Amro the first major bank in the Netherlands to provide access to a Developer Portal and specifically ask the outside world to become partners in its innovations. In the next phase, ABN Amro is working on extending more services as APIs and publishing it on the Developer Portal to increase API adoption.   Throughout our API journey, TCS has been a very dedicated and knowledgeable partner TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Theme Font size Line height =====================

Royal HaskoningDHV Enjoys IT Transformation

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businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS empowers European consultancy with cost effective and consolidated IT infrastructure. You have these already downloaded We have sent you a copy of the report to your email again.   Royal HaskoningDHV, one of Europe's leading project management, engineering, and consultancy service providers, was formed by the merger of Royal Haskoning and DHV. However, they faced an instant challenge when it came to merging the IT landscapes, legacy infrastructure, operating processes, and policies of both firms. This resulted in high costs and a severely limited ability to scale or innovate, causing the new firm's Information and Communication Technology (ICT) services to fail customer expectations.   To address the issue of user experience anxiety, our first instinct was to provide end-to-end service management and partnership. We worked with third party vendors to automate office processes and facilitate pay-per-use customer service deliveries at multiple locations. We then reimagined how the company was managing its technology infrastructure, end user computing, multi-language service desks, network and telephony, and end-to-end integration. Our pay-per-use White Box model computed the fixed and variable costs of designing, building, and running enterprise IT infrastructure, bringing cost transparency and flexibility to service delivery. By refining service management, report monitoring, and health checks—we facilitated proactive, instant analyses, troubleshooting, and incident resolution.   TCS handles nearly 100% increase in customer's service volumes.   We upgraded all their legacy systems to a state-of-the-art Microsoft cloud environment to enable communication, collaboration, and remote connectivity. Our solution continuously improved the user experience of ICT, guided innovation with a clear technology lifecycle roadmap, and provided a globally unified digital way of working. Susan Blesener Rex George Vinayak Gole Nikhil Patwardhan Theme Font size Line height ======================

Halfords delivers customer-first experiences with cloud

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/case-study/halfords-customer-first-experiences-azure-cloud ----- Halfords delivers customer-first experiences with cloud Industry Omnichannel CX and Intelligent Innovation – The Future of Retail Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy TCS and Microsoft Cloud: Driving Business Transformation Highlights On this page Challenge Solution Benefits Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. The UK-based retailer partnered with TCS to migrate its critical applications from on-premises data centers to Azure Cloud. UK's leading retailer of automotive and cycling products and services partnered with TCS to migrate its critical applications from on-premises data centers to Azure Cloud. You have these already downloaded We have sent you a copy of the report to your email again. Halfords decided to go 'mobile first, cloud first' to simplify the customer journey. As UK's leading motoring and cycling services provider with 400 stores and 650 garages, Halfords Group is grounded in the physical world. Yet, the retailer has a desire to provide services and experiences that connect both the physical and digital. "Our priority is to offer products and services that customers need at affordable prices and make the digital journey as simple as possible for them," says Jo Hartley, Chief Financial Officer, Halfords.

Taking this customer-centric approach, Halfords adopted a 'mobile first, cloud first' agenda. "We're really passionate about bridging the digital and physical worlds, particularly in the services area, which is a key part of our business strategy," says Neil Holden, Chief Information Officer, Halfords. That's why the retailer wanted to exit traditional, on-premises data centers and migrate its critical applications to the cloud. Another important factor was that Halfords' multiple servers and outdated infrastructure was proving to be costly. The legacy infrastructure was becoming inefficient, while technology upgrades were adding to costs. Multiple data centers and numerous vendor support models also made it difficult to coordinate between in-house and vendor teams to synchronize activities. TCS helped Halfords migrate its critical applications to Azure with an optimized cloud migration strategy. As an incumbent partner managing Halfords' infrastructure and business applications, TCS proposed a consolidated hybrid cloud model to migrate specific on-premises applications to Microsoft Azure. Halfords' existing Azure structure and business requirements were incorporated into foundation planning by the migration team. TCS implemented the plan using infrastructure-as-code (IaC) in foundation build and migration, leveraging Azure DevOps and continuous integration and continuous delivery (CI/CD) pipelines. The applications were then rehosted using Azure Migrate to ensure minimum dependency on the application support team. For some of the critical in-house legacy applications, neither direct rehosting nor re-platforming was possible because the applications were at their end of life and were not supported by new technology. The migration team first completed in-place OS upgrades for these applications and thereafter rehosted them to Azure Cloud. For some applications, we made the migration to an all-Azure environment complete by moving their SQL Server to Azure SQL, a fully managed platform-as-a-service (Paas) database engine. By partnering with TCS, Halfords is all set for growth, with a cloud-first approach. Halfords is poised for growth with the benefits realized from the cloud transformation journey, some of which are: What the client says "The key developments that have strengthened our business are really being able to partner with TCS and Microsoft together. That's helped to strengthen the business case and reduce capital expenditure. In addition, being able to align and optimize usage has enabled us to reduce operating costs far beyond those that you normally see in traditional hosting solutions." Jo Hartley Chief Financial Officer, Halfords "The most pleasing aspect of working on this project in a three-way collaboration with TCS and Microsoft was really the breadth and depth that TCS brought to the table and their expertise within the Microsoft Azure platform. " Neil Holden Chief Information Officer, Halfords Migration of Servers and Database to Azure How PODS improved productivity with cloud and IT automation TCS' Services for Cloud Migration to Azure for Digital Transformation Two-pronged Approach for Effective Cloud Operations Want to get the innovation edge with cloud? Theme Font size Line height
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Your cloud, your journey

Cloud built just for you Strategy to scale TCS GLOBAL CLOUD STUDY MOST DESIRED OUTCOMES FROM CLOUD Our Approach Our capabilities Our solutions BENEFITS Insights Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. new Business Model Business Strategies Customer Experience products and services We power your success with our unmatched partnerships and cloud capabilities. Cloud Strategy and Transformation TCS and AWS Cloud TCS and Google Cloud TCS and Microsoft Cloud Enterprise Cloud Strategy Foundation Migration Modernization Security Operations Belief in action Cloud migration Cloud transformation Cloud adoption Security In the news Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. SERVICES / CLOUD You have these already downloaded We have sent you a copy of the report to your email again. Your company has a unique purpose and growth journey. That's why you need a distinct cloud strategy to take advantage of breakthrough technologies, scale rapidly, and seize emerging opportunities. TCS can help you drive business value, build resilience, and advance your goals of transformation, adaptation, and innovation for a reimagined future. new business models, including operating processes and workflows new ways of aligning purpose with business strategies improved customer experiences improved products and services Drive business value Build resilience Innovate and reimagine Transform and adapt 01. Cloud Strategy and

Transformation Most businesses are at an early stage of cloud transformation & TCS' enterprise cloud solution helps build a scalable strategy & accelerate value. Learn more. 02. TCS and AWS Cloud We bring you the best of TCS and AWS to help you accelerate digital transformation and realize a clear path to value with continuous innovation on AWS Cloud. 03. TCS and Google Cloud Learn about the TCS-Google Cloud advantage and how our services can help companies achieve superior business value from their cloud transformation initiatives. 04. TCS and Microsoft Cloud Read how TCS and Microsoft Cloud's strategic partnership helps enterprises drive their edge-to-cloud transformation and deliver greater business outcomes. 05. Enterprise Cloud With a future-ready hybrid cloud strategy and innovative cloud services, TCS helps clients gain a competitive edge and business agility.   Future-proof your business with solutions tailored for you. BASF makes big strides in digital farming with AWS Cloud United Airlines all set to fly higher Woolworths takes a fresh approach to data-driven retailing DuPont makes its HRM system more employee-friendly Get it right the first time with a cloud business case Maximize value with a clear hybrid cloud strategy The enterprise-as-a-service (EaaS) approach to simplifying cloud Automation is your cloud protection keystone TCS Positioned as a Leader in the IDC MarketScape for Worldwide Microsoft Implementation Services ISG recognition IDC MarketScape honors TCS Leader in IDC MarketScape Theme Font size Line height No matter where you are on your cloud journey, we can help you get maximum value from it.

Modern intranet and employee applications

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PreCast for accelerated SAP S/4HANA implementation

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optimal system is what any enterprise requires; achieving it with the traditional approach can never be easy. BA comprehensive and flexible preconfigured solution with the most prevalent processes across industries, built-in user roles, and an extensible platform can be a simple yet robust approach. The solution should be flexible enough to adapt the needed localizations and fully harmonized within the corporate setup with the latest notes and patches to comply with legal requirements in the shortest possible time. It should be cloud-ready for deployment to enable users for immediate consumption and implementation jumpstarts with pre-deployed, pre-tested, and fully documented business processes to enable business users to make constructive business decisions for their enterprises. PreCast: TCS' offering for accelerated SAP S/4HANA implementation It is currently pre-configured for over 120 processes and localized for the UAE, Indonesian, and Indian geographies. The illustration depicts PreCast accelarators including country specific localization, ready to deploy ERP on Cloud Platform, preconfigured system + sample data + data templates, business process flows, business process documents, and test scripts/user manuals. The benefits of PreCast are manifold and multidimensional. The preconfigured business processes and accelerator elements bring optimization of tasks in an implementation with a PreCast-based approach. PreCast ensures minimal involvement of business during implementation but at the same time, it does not compromise with the outcome that the customer is looking for. PreCast enables accelerated implementation thereby reducing the implementation time. It ensures that there is always a single point of accountability throughout the transformation journey thereby reducing disruptions and delays. The PreCast-led implementation is always agile and rapid as the method follows a show-and-tell approach. The solution helps businesses to adhere to local, legal, and statutory compliance. The illustration depicts the key benefits such as preconfigured business process with extensibility feature, single point of accountability, agile, rapid deployment, and out of the box local, legan and statutory compliance. Multi-cloud, Hybrid, or Repatriation: The Future of Cloud Adoption Cloud 2.0: Empower Businesses with an Innovation-led Transformation Adopting FinOps Practices for a Successful Cloud Cost Management Walking the Path of Cloud Native for Enterprise Digital Transformation No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

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can: Accelerate migration speed by up to 10x. Improve quality with 100% first-time right implementation. Optimize migration costs with up to 30% savings. Accelerate time to value for first workload migration by up to 40%. Enhance reliability and security compliance with 100% design alignment. Rely on our proven expertise and talent. By partnering with TCS, enterprises can leverage: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ======================

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company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Accelerate S/4HANA transformation with cloud Organizations are increasingly adopting cloud to deploy new SAP applications and extend the core ERP functionalities of existing systems. It's not surprising, as on-premise ERP systems are not flexible enough to rapidly scale to business changes. In addition, on-premise infrastructures that host SAP workloads are reaching end-of-life support. Under such circumstances, migrating SAP systems and data to cloud not only unlocks greater enterprise agility for innovation, but also brings in cost and operational benefits. Take costs, for instance. Enterprises want to reduce expensive data center footprints and consolidate disparate SAP systems. Also, in order to remain competitive and keep pace with the ever-evolving business environment, companies are investing in large-scale SAP transformations. Fragmented ecosystems, lack of automation, high licensing costs, and longer deployment time are driving SAP clients to AWS Cloud, which is specifically designed to support SAP workloads. Build your digital core with SAP on AWS Cloud TCS helps enterprises migrate SAP workloads seamlessly and confidently to AWS Cloud using proven solutions that are scalable, secure, reliable, and cost-effective. We help customers to quickly assess their existing application landscape and define a new, lean architecture on AWS. Enterprises can achieve efficiency and innovate with secure lift-and-shift options or cloud-native solutions for core ERP applications. Our comprehensive suite of SAP-related services for AWS include strategy, design, migration, business continuity, operations, and cloud-ready solutions. Key offerings: TCS ConvertCore for AWS offers a built-in modular approach that allows enterprises to drive incremental business value. It comprises value drivers such as cloud adoption, system consolidation, user experience enhancement, process simplification, and functionality improvement. TCS Crystallus™, a set of pre-configured industry specific solutions, helps enterprises succeed in their digital transformation initiatives by leveraging SAP leading practices, improving the digital core, and employing intelligent edge technologies. Lay the foundation for a future-ready enterprise Organizations can set themselves up for future success by moving their SAP workloads to AWS Cloud and building a digital core. The gains are many—from lower supply chain costs to increased organizational efficiencies and personalized customer experiences. Faster time-to-market: With our services, you can accelerate your SAP transformation by 20-30%, and gain significant lead time advantage. Reduced costs and improved ROI: Achieve lower total cost of ownership (TCO) through minimized data replication and legacy footprint, and reduced efforts. Competitive advantage: Build a foundational base for an intelligent enterprise with our services that bring together industry-specific best practices and our contextual knowledge. Business agility: Chart a path for perpetual transformation with SAP on AWS Cloud, allowing for adoption of new business and service models, and powering continuous innovation to stay ahead of the curve. For more than 20 years, TCS has partnered with SAP to help clients transform their finance, supply chain, front-office, and human resources organizations. TCS is an AWS Premier Consulting and Managed Services Partner. We have achieved AWS competency on SAP AWS and are a partner for SAP Migration Acceleration Program (MAP), a comprehensive and proven cloud migration program. With our rich pool of talented SAP consultants spread across the globe, we help deliver exponential value to

clients worldwide. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Cloud 10 Methodology

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needs and accelerate their business growth. To help the enterprises that are facing this situation, TCS has developed a Cloud 10 Methodology with built-in assessment framework that analyzes the top 10 enterprise guiding principles for the selection of the best cloud platform. The service ensures that the platform selected matches the business needs, application portfolio, and strategies of the enterprise. The key steps under TCS Cloud 10 Methodology are: The TCS Cloud 10 Methodology takes input on 10 most important aspects of cloud adoption based on the requirements of an enterprise. Some benefits that enterprises can reap with this built-in assessment framework are: TCS leveraged the vast contextual knowledge, expertise of working with leading enterprise across industries, and world-class cloud partners to design the TCS Cloud 10 Methodology. So, by joining hands with TCS, enterprises stand to gain from: An agile and flexible system that performs a focused analysis using TCS Location Independent Agile™ to select the best cloud platform TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises =====================

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releases, reports, and company announcements. Deploy, manage, and scale container-based applications by reducing application delivery cycle times You have these already downloaded We have sent you a copy of the report to your email again. Traditional architecture-based applications tend to have long development lifecycles, are difficult to migrate across environments, and lack maintenance support. Close integration of applications and their dependencies in underlying hardware limit their ability to scale servers or architecture on demand. There is an increasing need to quickly deploy innovative solutions for application modernization and cloud native development with microservices. Faster software release, portability between hybrid and multi-cloud environments are key for enterprises to meet market demands. TCS' Container-as-a-Service (CaaS) solution enables IT and DevOps professionals to deploy, manage, and scale container-based applications, clusters and services easily, reducing application delivery cycle times and improving business agility. The CaaS platform is: Reduces IT costs, while enabling the agility needed to quickly develop modular code. Allows enterprises to manage and deploy containers, applications, and clusters through container-based virtualization. With TCS CaaS, enterprises can gain the following benefits: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises =====================

Cloud Modernization Services for Enterprise IT

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TCS SAP Application Migration to Google Cloud

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enterprise with RISE with SAP. Enterprises are leveraging the Google Cloud Cortex Framework to accelerate business insights and outcomes with less risk, complexity, and cost with reference architecture patterns, packaged solution deployment content, and integration services to kick-start their data cloud journey. The Framework builds intelligence into their SAP data collected daily and operationalizes data back to business processes across the supply chains. TCS, a Google Cloud partner, is leveraging the Google Cortex Framework to help organizations unlock deep data insights and quickly deliver differentiating capabilities to customers. TCS has created a Centre of Excellence for the Google Cloud Cortex Framework, which leverages its deep technology and industry experience with its customers, to address cross-industry supply chain challenges. Our team has collaborated with Google Cloud to establish the integrations between SAP source systems and Google Cloud Big Query, which utilizes the strong artificial intelligence (AI) and machine learning capabilities of Vertex AI to improve insights and forecasts that help them meet market demands and disruptions more efficiently. Our customers have enhanced their ability to predict shipment delivery time with >90% accuracy, reduce potential business uncertainties, identify risk, and avoid adverse impact on operations. TCS' comprehensive suite of services include: Cloud strategy and design: TCS leverages TCS SAP Migration framework to assess and understand the nuances of the existing landscape with SAP-certified tools to modify the code and build the enterprise environment. Cloud build, migration and deployment: Accelerate cloud migration with an automated tool-based approach powered by TCS SAP Cloudify. This solution helps build and migrate SAP applications to the cloud. TCS SAP Cloudify leverages open-source DevOps tools such as Terraform and Ansible and can be customized to accelerate the migration journey. Cloud extend: Facilitate the development of custom extensions using the TCS-SAP Cloud Appliance Library. Cloud innovate: Build innovative use cases leveraging SAP and Google Cloud technologies such as Cortex, Vertex, and APIgee to speed up cloud deployments. Virtualize SAP deployments in the cloud to avoid distributed on-premise and cloud landscapes. Cloud smart analytics: Accelerate decision making through intelligent actionable insights by leveraging Google Cloud's Cortex framework to unleash the power of SAP data combined with insights on weather and GPS using BigQuery and Looker. Set your business up for purpose-led, sustainable growth. Our solution provides multiple benefits— on-demand scalability, higher ROI, increased resilience, reduced technical debt, and lower risk. At TCS, we help businesses imagine, plan, navigate and realize what's possible with cloud. We enable our clients' unique cloud journeys with our key differentiators: Cloudification of the digital core How TCS Accelerated Hyperoptic's Digital Transformation Journey SAP on Google Cloud for intelligent enterprises TCS Recognized as a Leader and a Star Performer in System Integration Capabilities on Google Cloud by Everest Group Want to know how we can help you drive purpose-led growth? Theme Font size Line height =====================

Accelerate application modernization with TCS and Google Cloud

Services TCS-Google Cloud: Driving Innovation and Digital Transformation Highlights In this article Overview Solution Benefits Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Cloud native is the way forward for modernization and growth. In this era of digital disruption, enterprises are striving to improve business agility, drive innovation at scale, accelerate time to market, and build resilience and scalability to be more competitive. However, a key challenge arises from legacy technologies that are monolithic, unscalable, require manual efforts and involve lengthy application development cycles for releasing new products and services. Enterprises looking to overcome these challenges are turning to cloud-native application development and containerization to fuel growth, accelerate innovation, and find quick resolutions to customer concerns. Enable faster application development without compromising on quality and security. TCS offers end-to-end services and solutions—from legacy

application assessment to migration and modernization—to help you achieve purpose-led growth from your Google Cloud transformation initiatives. Build an agile digital core to lead the future. The benefits of TCS' factory model are many. It accelerates application development, database design, various types of testing, monitoring, management, API development and life-cycle management for common cloud architecture and design patterns, resulting in: 40% reduction in development cycle time for containerized workload. 30% reduction in cost of quality. Fast-tracked domain-driven microservice decomposition and design for specific industry verticals. Automated deployment of common architecture blueprints and CI-CD pipelines. Telia unifies API management Equifax UK modernizes identity and fraud platform TCS' DevOps solution for Google Cloud Unleashing the power of AI Want to know how we can help you drive purpose-led growth? Theme Font size Line height =====================

Infrastructure modernization on Google Cloud

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We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. As enterprises reinvent themselves to adapt to a changing world, IT infrastructure modernization is becoming an integral part of their digital transformation. From assessment and migration to managed services and security, TCS' infrastructure modernization services on Google Cloud cover the entire enterprise cloud adoption spectrum. We enable enterprises to accelerate cloud adoption and achieve greater business value—30% optimization in operations cost, 10X faster time to market, and more. Many enterprises are still running business applications on legacy infrastructures that generate multiple challenges, such as high total cost of ownership, vendor lock-ins and unutilized capacity, which impact enterprise agility. Some are exiting on-premise data centers and migrating to cloud while others are opting to work with more than one public cloud platform, making interoperability a key consideration. Infrastructure modernization is an integral part of an enterprise's digital transformation as enterprises reinvent themselves to adapt to a continuously changing world. TCS helps companies respond to this challenge by providing end-to-end services for the cloud adoption journey. Infrastructure modernization services help enterprises build a digital core by leveraging cloud to enable a scalable, elastic and resilient infrastructure to drive business growth. We enable enterprises to realize a cloud-first strategy through a Machine FirstTM delivery approach, which automates all relevant business processes into intelligent processes. This method accelerates cloud adoption, enhances business value, and optimizes the cost of operations. TCS offers end-to-end infrastructure modernization services and solutions that span the enterprise cloud adoption journey from assessment and advisory, foundation, migration and managed services, to ensuring security by design throughout the journey. Strategic transformation on Google Cloud Leverages TCS Cloud Counsel for automated migration planning, total cost of ownership analysis and Google Cloud platform target state. Robust foundation for workloads on Google Cloud Uses reusable artefacts to rapidly define, design and deploy cloud foundational platforms, such as Google Cloud. Seamless migration of workloads on Google Cloud TCS Data Center Modernization Services Offers scalable, secure, and reliable solutions built using Machine FirstTM models at the TCS Migration Factory on Google Cloud. Services span migration of enterprise applications to multi-cloud, conversion of legacy databases to Big Query, integration with Google Anthos for hybrid cloud and migration to VMWare Engine on the Google Cloud Platform. TCS Migration Factory on Google Cloud A proven and repeatable enterprise cloud migration and modernization framework, powered by TCS Migration Factory on Google Cloud. This innovative Factory Model provides end-to-end application migration with orchestration and automation for different migration lifecycle stages such as migration discovery, design recommendation, automated deployment and validation and enables accelerated, near zero risk migration. TCS Migration Factory on Google Cloud provides a flexible service model with two migration service categories and over 60 modules: The framework enables a quick setup by

leveraging people, process and technology modules; automates the migration lifecycle with TCS Migration Factory on Google Cloud; and ensures designs are aligned with Google Cloud's architecture framework. TCS Migration Factory on Google Cloud is leveraged for customer use cases such as rapid data center exit, cloud adoption through lift and shift, improve and shift and modernization to cloud native technologies. Enterprise reliability services for hybrid clouds Provides holistic cloud orchestration and value management for multi- or hybrid-cloud environments. It runs across all cloud resources on Kubernetes and non-Kubernetes environments, and enables enterprises to gain a single-pane of glass control over all their public cloud footprints as well as on-premise IT. Workspace services on Google Cloud Offers services including migration and collaboration platform migration to G-Suite as well as managed virtual desktop and collaboration platform managed services.   With TCS and Google Cloud-powered infrastructure modernization, enterprises can improve their time to market and speed of innovation, while creating a transparent, agile enterprise operation. optimization in operations cost faster time to market and business agility TCS and Google Cloud help businesses imagine, plan, navigate, and realize what's possible with cloud through our: Fletcher Building Partners with TCS and Google Cloud to Drive Growth through Data and Digital Innovation Equifax UK brings agility and resilience with Google Cloud TCS named leader in ISG Provider LensTM for Google Cloud Ecosystem AI-powered Business Transformation: What the Future of Business Holds Want to know how we can help you drive purpose-led growth? Theme Font size Line height =====================

Innovate with TCS' Data and AI Services on Google Cloud

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using robust, domain and industry-specific analytics solutions. ML services: Builds predictive and prescriptive models leveraging Vertex AI, TensorFlow, Kubeflow, Auto ML products, and BigQuery ML and tapping into data stored in BigQuery, Cloud Storage, or Dataproc. Cloud-based AI TCS' cloud-based AI services draw on our deep contextual knowledge and Google Cloud's market-leading data and AI platforms, toolsets, solutions and APIs to build intelligent, context-aware applications and solutions that drive new business insights. These include: Intelligent customer experience transformation: Provides omnichannel experience and automates contact center interactions by using AI, ML, advanced analytics, and self-services to enhance customer experience and lower the cost of service and operations. Intelligent operations transformation: Leverages Google Cloud's market-leading data and AI capabilities to achieve enhanced operational efficiency at a lower cost. Generative AI TCS has partnered with Google Cloud to help enterprise clients harness the power of generative AI to promote innovation, drive growth, and transform industries. Our generative AI offering is powered by Google Cloud's generative AI tools—Generative AI on Vertex AI, Generative AI App Builder, and Model Garden—along with TCS' own solutions and offerings. TCS' client-specific contextual knowledge, proven design thinking, and agile development processes allow us to prototype and build transformative solutions. At TCS' Cloud Lab on Google Cloud, we accelerate innovation and help our clients get to value faster. We've created 50+ proofs of concept for enterprise clients spanning a range of industries, including banking, retail, communications, media, healthcare, manufacturing, and travel. From strategy to value realization, our industry use cases provide rapid value, with an unyielding focus on compliance, governance, privacy, security, and responsible AI. TCS and Google Cloud help enterprises extend the value of cloud to innovate and realize their true business potential. With our Data and AI Services on Google Cloud, you can achieve: TCS and Google Cloud enable organizations to make the most of cloud, AI, and data to reimagine their business. Key differentiators include: Embracing data-driven retail to enhance customer experiences Designing ethical and explainable AI for the benefit of humanity AI's impact on the future workforce How AI Helps Manage and Glean Insights from Unstructured Data Want to know how we can help you drive purpose-led growth? Theme Font size Line height =====================

Grow your business with industry services on Google Cloud

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delighting customers, or capturing new business opportunities, TCS and Google Cloud empower enterprises get more from their cloud investments. We enable them to: TCS Launches Clever Energy™ Solution on Google Cloud to Help Organizations Achieve their Net Zero Goals TCS BaNCS Now Available on Google Cloud: Helps Financial Services Firms Innovate and Scale Faster TCS Wins Two Google Cloud Partner of the Year Awards Designing ethical and explainable AI for the benefit of humanity Want to know how we can help you drive purpose-led growth? Theme Font size Line height =====================

TCS' Cloud Migration Services and Solutions on Google Cloud

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transformation enables agile, scalable and efficient IT environments. During such transformations, most enterprises choose to work with more than one public cloud platform to avoid vendor lock-in, leveraging cloud resources efficiently, and enabling unified management. While migrating on-premise applications to cloud, enterprises look at options to modernize applications by migrating to cloud-native architecture on Google Cloud, either by adopting a lift-and-shift approach for quick migration followed by modernization, or taking a combination approach. This enables enterprises to quickly migrate their commercial off-the-shelf (COTS) applications, standardize bespoke applications, leverage next-gen digital technologies for business growth, and focus on portfolio transformation. TCS' approach to migrating business applications to Google Cloud aligns organizational goals with digital transformation as a first step, enabling a balanced migration-modernization journey. The approach involves: Re-hosting applications through migration of virtual machines using M4CE or Anthos Migrate TCS' end-to-end cloud migration services and solutions comprise: Improve the time to market by up to 10 times compared to on-premise Reduce migration timelines by around 30%, leveraging TCS Migration Factory on Google Cloud Accelerate the realization of business value with cloud-native capabilities Drive risk-free migration supported by TCS' certified Google experts   By partnering with TCS, enterprises can leverage: Fletcher Building partners with TCS and Google Cloud Equifax UK uses Google Cloud to future-proof its business TCS recognized as a leader in Google Cloud ecosystem Unleashing the power of AI for business transformation No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height

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Enterprise Reliability Services for Hybrid Clouds

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TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Drive scalable business operations with TCS' multi-cloud management services Please fill this form to download or click here to download directly. I would like to receive details about products, services and events from TCS.* For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. *Mandatory fields Leave it with us We've got your request and we'll get back to you as soon as we can. More about us You have these already downloaded We have sent you a copy of the report to your email again. In today's hyper-competitive age, businesses are constantly looking for opportunities to enhance existing offerings through cost-optimized, reliable and scalable applications. While multi-cloud is a tempting cost proposition, there are challenges associated with its management such as lack of interoperability, limited scaling opportunities and complexity in cross-cloud monitoring. Besides, enterprises also face issues in understanding consumption patterns and unlocking the true potential of their businesses. TCS Enterprise Reliability Services is a holistic cloud orchestration and value management solution for multi/hybrid cloud environments. It runs across all cloud resources on Kubernetes and non-Kubernetes environments, and enables enterprises to gain a single pane of glass control over all public cloud footprints as well as on-prem IT. With features such as multi-cloud management, integrated IT service management, inter-operability across clouds, enhanced security, and a digitized architecture library for automation, the solution offers seamless cloud orchestration and environment provisioning for enhanced user experience. Powered by TCS' Machine First Delivery Model™, the solution provides end-to-end visibility of the IT environment and enables transparency in service delivery and cloud value management. With TCS Enterprise Reliability Services for Hybrid Clouds, enterprises can reap the following benefits: Increase platform operational efficiencies up to 55% with unified visibility Optimize operations cost by as much as 30% Increase speed-to-market by 13 times and reduce non-coding activities up to 38% Gain agility and robustness in operations through the Google SRE model Enable a consistent user experience across the hybrid cloud with a single control pane Experience demand-driven consumption models on the cloud TCS Mainframe Modernization on Google Cloud Equifax UK brings agility and resilience with Google Cloud Woolworths takes a fresh approach to data-driven retailing TCS Wins Three 2023 Google Cloud Partner of the Year Awards No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

TCS Security Services on Google Cloud

Services Data and Cybersecurity to Fight off Cyberattacks Highlights On this page Overview Solution Benefits The TCS Advantage Transformation starts here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Safeguarding your digital estate with simplified and automated cloud security controls You have these already downloaded We have sent you a copy of the report to your email again. Reduce attack surfaces and accelerate digital transformation. Organizations embracing new opportunities to modernize applications and infrastructure through cloud transformation initiatives often face multiple security and compliance challenges. Misconfiguration, inconsistent policy enforcement, and data breaches are just some of them. In addition, the shortage of skilled professionals and the absence of centralized visibility and controls can cause delays. A cohesive and comprehensive secure-by-design strategy can help organizations ensure regulatory compliance, mitigate risks, and protect businesses from potential cyberattacks. TCS Security Services on Google Cloud provide built-in security controls through simplified and automated policy controls to safeguard businesses and accelerate their cloud transformation journeys. Provide comprehensive and risk–based security for your business on cloud. TCS Security Services on Google Cloud offer end-to-

end protection of your business on cloud. Our security services include: Focus on growth with unified visibility, continuous compliance assurance, and risk reduction taken care of. End-to-end cloud security coverage Higher visibility and transparency through security management and better governance Speed and agility Preventative guardrail enforcement with a secure-by-design approach, providing developers the flexibility and continuous feedback to innovate within the boundaries of defined security policies Improved collaboration and agility across development, security, and compliance teams Operational efficiency Continuous compliance assurance against a library of industry- and geo-specific standards and best practices Cost savings Significant improvement in cost optimization, reduced security debt, and total cost of ownership through well-defined, repeatable, automated processes, compliance, and audit cost Risk reduction Reduced threat surfaces with built-in zero-trust security Improved risk resilience and compliance outcomes Get a secure, competitive edge with our holistic security cover, accelerators, and partnerships. Comprehensive cloud security: With our full-service cybersecurity play services comprising consulting, advisory, secure foundation, engineering, modernization, and more, we ensure a 360-degree holistic coverage to protect enterprises on Google Cloud. Pre-built enablers and accelerators: TCS' service enablers, reusables, foundation security blueprints, and accelerators allow faster onboarding of security services. Unique delivery model: TCS' delivery model is based on the information technology infrastructure
library (ITIL), with cost-effective and consistent round-the-clock support. Research-backed solutions: Multiple centers of excellence focused on cybersecurity research of emerging threats and vulnerabilities help secure all assets. Strategic alliance with Google Cloud: TCS has been recognized as a Google Cloud Security specialized partner. TCS wins three 2023 Google Cloud partner of the year awards TCS Cloud Lab on Google Cloud: Making your ideas a reality Equifax UK modernizes identity and fraud platform Designing ethical and explainable AI for the benefit of humanity Get in touch to learn more about how we can help protect the data on Google Cloud =====================

Innovate and reimagine your business with TCS Cloud Lab on Google Cloud

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journey and build new services and apps quickly. TCS Optumera™: An AI-powered suite of solutions, it optimizes merchandizing and supply chain decisions in an integrated manner to help retailers increase sales, improve efficiency, and decrease costs. TCS TwinX™: An enterprise digital twin platform that combines cutting-edge research on AI and a virtual persona model to aid companies in effective decision making. TCS WaferWise™: A solution that automatically detects wafer anomaly in semiconductor manufacturing to improve product quality, increase throughput, and enhance business growth. We also provide cloud operations support through TCS Cloud Exponence for Google Cloud Platform, a shared services model that simplifies cloud management and orchestration. Reinvent for the future with TCS. TCS' cloud labs play a key role in enabling an effective and seamless migration to Google Cloud for our clients. More importantly, they help businesses reinvent themselves for the future. Our work with several market-leading global organizations at our labs has helped them realize numerous benefits including: Accelerate time to market with a rapid development cycle. Reduce risks, costs and time through rapid prototyping and continuous improvement. Apply emerging technologies to develop PoCs and proof of technology for agile projects. Innovate, adapt and build competitive advantage with differentiated solutions. Take an informed decision on investment after visualizing end product and value. Leverage the power of a collaborative ecosystem. When you team up with us, you can navigate your way to cloud success with confidence. TCS is a Google Cloud Partner and provides end-to-end services for cloud migration, application and data modernization, managed services, SAP on cloud, digital transformation, and industry-specific solutions. TCS has developed a library of assets, blueprints, and accelerators to automate delivery and management of different stages of the cloud life cycle. TCS' Google business offers a full complement of services and solutions leveraging TCS' domain-focused innovation and Google Cloud's suite of technologies to help enterprises achieve superior business outcomes from cloud. Innovate with TCS' Data and AI Services on Google Cloud TCS SAP Application Migration to Google Cloud Accelerate application modernization with TCS & Google Cloud TCS Services on Google Workspace Theme Font size Line height ======================

TCS Services on Google Workspace

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TCS API Management Solution on Google Cloud

Services TCS-Google Cloud: Driving Innovation and Digital Transformation In this article Overview Solution Benefits The TCS advantage TCS Services on Google Workspace TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Driving business outcomes at speed with a simplified API landscape You have these already downloaded We have sent you a copy of the report to your email again. Highlights Strengthening the digital value chain with APIs Application programming interfaces (APIs) allow enterprises to share data with partners, third parties, and in public domains securely and in an agile manner. They enable the digital value chain with application integration, plug-and-play data integration and innovation, and easy collaboration with ecosystem partners. Cloud migration, digital transformation, and the increasing popularity of microservices have led to a growing ecosystem of APIs. With the surge in the use of APIs, many companies now need a way to manage APIs efficiently and effectively. Supporting APIs throughout their life cycle TCS' API Management Solution on Google Cloud helps enterprises design, secure, scale, and manage APIs in multi-cloud and hybrid environments. We offer end-to-end services from greenfield API development and proxy migration to platform operations so

you can manage your APIs with agility and security. By bringing the best of our enterprise application and cloud talent as well as external application developers, we help you get the most out of Apigee, an API life-cycle management platform from Google Cloud. A hybrid solution, Apigee as either a SaaS or on-prem platform helps manage a diverse API application landscape spread across public clouds, data centers, and third-party vendors. Our full-stack API management services include: Building with flexibility, and collaborating with confidence With us as your trusted partner through initiation, mobilization, and evolution into API maturity, you can drive maximum value from your API investment. Reimagining your business for purpose-led, sustainable growth We help businesses reimagine and realize what's possible with our contextual knowledge, technology know-how, and the strength of our partnerships. The TCS API Management Solution on Google Cloud is a scalable platform that provides fast, secure, and agile adoption of APIs on-premise and cloud. Telia unifies API management Accelerate application modernization with TCS & Google Cloud Star Performer in SI Capabilities on Google Cloud by Everest Unleashing the power of AI for business transformation Theme Font size Line height =====================

TCS' DevOps solution for Google Cloud

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analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Drive business agility by transforming monolithic workloads to Google Cloud and establishing DevOps foundations You have these already downloaded We have sent you a copy of the report to your email again. Highlights Modernize applications to drive business agility and meet customer expectations. To meet changing customer needs, businesses are modernizing their traditional monolithic applications to cloud-native stacks. While application modernization helps drive business agility, it is not enough to guarantee agile IT and operations. Organizations must embrace modern DevOps processes, culture, and tools to support cloud-led business transformation. This involves standardizing processes and tools that support entire application life cycle–from requirements management through design, build, deployment, and operations. It requires creating a development environment that allows continuous integration and improvement. Ensuring software supply chain security—or securing all the components, activities, and practices involved in software creation—is also essential. In this context, organizations using public clouds are more likely to fare better as the providers offer essential building blocks to implement and automate secure supply chain practices. With our unique approach to DevOps adoption and vast experience of driving technology transformation in data centers and various cloud environments, TCS helps organizations lay strong digital foundations for their future success. Get more out of your cloud transformation with TCS' DevOps solution for Google Cloud. TCS' DevOps Solution for Google Cloud leverages TCS solution accelerators and Google Cloud capabilities to help organizations move to a future-ready, agile IT architecture on cloud. It helps companies quickly adopt DevOps and achieve flexibility and scalability to meet business demands. A figure depicting the SRE implementation phases, such as assessing maturity, projecting a roadmap, building a foundation, automating SDLC processes, creating SOPs, onboarding new apps, and operating/refining the entire process involved while adopting DevOps. Our approach to DevOps adoption encompasses the entire development cycle from assessment and foundation laying to automation and onboarding of an application. We help enterprises with: Quicker adoption of DevOps: Leverage TCS' solution accelerators and Google's cloud-native building blocks such as Cloud Code, Cloud Build, Cloud Deploy, Deployment Manager, Cloud Scheduler, and Cloud Operations to adopt DevOps methods and culture across software development life cycle (SDLC) phases at speed. Faster modernization: Reduce the time taken for application modernization, from initiation to the adoption of microservices using Devops methods. Hybrid cloud migration: Expedite migration and management of multi-cloud and hybrid workloads on Google Cloud. Automated integration and deployment: Automate the generation of continuous integration and deployment pipelines at scale. Secured software supply chain: Leverage reference architectures and starter kits to establish a secure software supply chain foundation. Automated testing: Drive efficiencies and reduce errors with automated testing and centralized tracking of different types of testing including that of infrastructure. Build a strong DevOps foundation for your organization and set yourself up to

innovate at speed. With our comprehensive solution covering database design, various types of testing, monitoring, API development, and life-cycle management for common cloud architectures, and more, you can achieve: Up to 40% reduction in development cycle time for containerized workloads. Up to 30% reduction in the cost of quality. Significant reduction in the initial learning curve for the development teams. Fast-tracked domain-driven microservice decomposition and design for specific industry verticals. Automated deployment of common architecture blueprints and continuous integration and continuous delivery (CI-CD) pipelines. Realize business outcomes faster using TCS' industry experience, contextual knowledge, and strategic partnerships. Industry-leading expertise and experience: With decades of application development and maintenance experience across all industries and geographies, TCS has deep contextual knowledge of IT landscapes to understand the challenges, intricacies, and associated dependencies. Strategic partnership with Google Cloud: Our range of industry-specific solutions on Google Cloud, Google-certified professionals, and strong partnership with Google Cloud help companies across industries solve their most complex challenges and reimagine their business for purpose-led, sustainable growth. Cloud accelerators: Clients can get started on their DevOps and cloud journeys easily using our proprietary accelerators such as Cloud Assurance Platform, a one-stop solution for centralizing and reporting all aspects of testing for application modernization on cloud. Cloud Mason: A solution for infrastructure provisioning and automation ZippedAgile: A cloud-native CICD pipeline generator CloudRAMP: An architecture continuum of starter-kits and guidelines for cloud-native development. Cloud Assurance Platform: A one-stop solution for centralizing and reporting all aspects of testing for application modernization on cloud. Equifax UK uses Google Cloud to future-proof its business Woolworths takes a fresh approach to data-driven retailing AI and the future of business TCS recognized as a leader in Google Cloud ecosystem Theme Font size Line height
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TCS Contact Center AI on Google Cloud

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resolution of recurring issues. Provide personalized, proactive, and omnichannel customer experience, leading to a higher net promoter score. Gain up to 90% improvement in call routing accuracy. Leverage real-time customer service in 9 languages. Move up to 80% of traditional call center volume to cognitive-AI-based response systems. Achieve over 60% call fulfillment during initial deployment. Monitor and optimize contact center AI services for business transformation and customer satisfaction. With TCS Contact Center AI on Google Cloud, you gain: Industry expertise: TCS' Google Cloud-certified experts help companies leverage domain-specific call center AI solutions to measure contact center efficiency. Cloud accelerators: Cloud-native technologies and our Machine First™ delivery approach let enterprises automate business processes infused with intelligence, creating greater business value and optimizing costs. Leverage TCS' tools to create conversational workflows and configure business rules to improve call handling and routing capabilities. TCS Cloud Lab on Google Cloud: TCS drives continuous innovation, rapid experimentation, and program acceleration with our suite of cloud accelerators rendered on TCS Cloud Lab on Google Cloud. Strategic partnership: Our partnership with Google Cloud offers enterprises a wide range of services and solutions leveraging TCS' domain-focused innovation and Google Cloud's suite of technologies. Move up to 80% of call center volume to contact center AI with 90% accuracy in call routing. Data and AI Services on Google Cloud to fast track data modernization How AI will transform customer care AI-powered Business Transformation: What the Future of Business Holds Designing ethical and explainable AI for the benefit of humanity Theme Font size Line height ========================

TCS Business Intelligence Modernization on Google Cloud

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TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Gain business insights for smarter decision making You have these already downloaded We have sent you a copy of the report to your email again. Drive strategic decisions with business intelligence Business intelligence is integral for strategic decision making. It fuels an enterprise's capabilities to tap into customer behavior patterns and meet changing market demands. However, building business intelligence is not easy. Organizations often run into roadblocks such as data governance issues, systems that lack flexibility and scalability, lack of contextual knowledge, and other challenges like embedding business intelligence into their operations. Organizations need a simplified approach to enable new data experiences and business insight use cases to drive strategic decisions. With cloud-native technologies, enterprises can transform the way they do business analytics, get insights from complex sets of data in real-time, and gain a competitive edge. Leverage our proven expertise in delivering modern data experiences TCS' Business Intelligence Modernization on Google Cloud leverages cloud-native technologies to enable modern data analytics experiences for enterprises. We offer a comprehensive and simplified approach to business intelligence that helps businesses create a data-driven culture.   Our services include: Roadmap consultation: We help enterprises assess their legacy analytical landscape and identify opportunities and gaps based on their business goals. Along with recommendations for insightful and modern analytical experiences, we help them prepare a roadmap for a cloud-based analytics transformation.   Data foundation build: This covers enabling collaboration with core data teams to identify the right data and creation of data frameworks to streamline, standardize, consolidate data and lay the foundation for supporting a wide range of business analytics use cases. Companies can leverage the features and strengths of our data storage platform to create a cost-optimized, high-performance, and flexible data layer that supports complex data analysis. BI modernization: This includes creating a governed, secure, and scalable KPI definition layer that is accessible across the organization by analytical and non-analytical applications. Our services allow enterprises to develop intuitive and interactive business reports and dashboards using a variety of visualizations and real-time data. What's more, an intuitive UI enables robust self-service data exploration for users and allows them to seamlessly share data with other users.   Embedded analytics: We enable the delivery of insights to the business community on their choice of platform in a seamless and connected way. By delivering personalized content at scale, we help enhance users' experience on web portals and custom data applications.   Accelerate

insights: We enable companies to leverage the power of collective intelligence using a platform that allows the development, management, and sharing of mission-critical and purpose-built content. Using a templated model on business data, companies can fast-track development, re-use custom-built visualizations to highlight business data, and deploy applications for enhanced metadata exploration. Make the most of TCS and Google Cloud capabilities to get future-ready Using TCS Business Intelligence Modernization on Google Cloud, enterprises can: Overcome the limitations of legacy analytical systems. Develop an organization-wide, secure, single source of truth for business data with proper guardrails for governance in place. Modernize the insight delivery mechanism to business users across all levels of the organization. Create a 'beyond BI' experience for users by going beyond reports to integrate analytics with business applications. Derive deeper value from data assets by extending their capabilities to create custom applications. Partnering for business success Industry expertise: Leverage TCS' industry and technical expertise to get more value from your analytics journey. TCS Cloud Lab on Google Cloud: TCS drives continuous innovation, rapid experimentation, and program acceleration with our suite of cloud accelerators rendered on TCS Cloud Lab on Google Cloud. Strategic partnership with Google Cloud: Through our partnership with Google Cloud, we offer enterprises a range of services that leverage TCS' domain-focused innovation and Google Cloud's suite of technologies. Innovate with TCS' Data and AI Services on Google Cloud Woolworths takes a fresh approach to data-driven retailing Equifax UK uses Google Cloud to future-proof its business Fletcher Building partners with TCS and Google Cloud Learn more about how TCS can help you obtain intelligent business insights. Theme Font size Line height ======================

TCS Mainframe Modernization on Google Cloud

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/google/solution/mainframe-modernization-cloud ----- Solution TCS-Google Cloud: Driving Innovation and Digital Transformation   Highlights On this page Overview Solution Benefits The TCS Advantage Transformation starts here. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related content Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the

extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Unlocking business value by seamlessly accelerating the modernization of mainframe applications You have these already downloaded We have sent you a copy of the report to your email again. Scale quickly and securely leveraging Google Cloud's native application services. Businesses are looking to modernize their legacy mainframes to meet challenges such as slow integration with new technologies, inflexibility to launch experimental workloads, and rising cost of ownership. This report reveals that data access, business agility, and cost reduction are top drivers for mainframe modernization. Mainframe modernization to hyperscaler public cloud platforms, such as Google Cloud, leads to higher productivity, business sustainability, and faster time to market. The services that help enterprises transition from on-premises mainframe hardware and operations, move software and data from mainframes to cloud, and migrate to new technologies are in high demand. Afterall, mainframe modernization can create up to a 60% reduction in operational cost, a 70% improvement in the go-to-market cycle, and a 50% faster integration with the business ecosystem, as our work with clients have shown. Got optimal return on investment through risk-managed modernization to Google Cloud. TCS' tailored services, strategic approach, and comprehensive offerings address the challenges of modernizing mainframe applications and empower customers to create tangible business value. Here's what we do: Achieve high-level business value by modernizing complex mainframe applications on Google Cloud. Using TCS' expertise and the power of Google Cloud, companies can improve the performance, scalability, security, and cost-effectiveness of their mainframe systems. They can: Save up to 30% on migration costs by using TCS and Google Cloud accelerators and services. Accelerate migration by 20% to 40%. Enable a risk-adjusted modernization, adhering to industry and regulatory compliance. Achieve flexibility, efficiency, and faster time to market. Incorporate AI and machine learning use cases into their modernization strategies. Accelerate your transformation with TCS' accelerators, Google Cloud's enablers, and our strong partner ecosystem. Industry and mainframe experience: Over 25 years of modernization experience; more than 2 billion+ lines of code analyzed; experience in providing services for different mainframe-based applications, including IBM, Unisys, HP Fujitsu, and Tandem systems. Strategic alliance with Google Cloud: TCS is a Google Cloud premier partner with a large and growing talent pool of Google Cloud-certified consultants.

TCS partner ecosystem: TCS leverages alliance partners to rehost, refactor, re-platform mainframe applications, and migrate mainframe data. Fletcher Building Partners with TCS and Google Cloud to Drive Growth through Data and Digital Innovation Equifax UK brings agility and resilience with Google Cloud TCS named leader in ISG Provider LensTM for Google Cloud Ecosystem AI-powered Business Transformation: What the Future of Business Holds Learn more about how TCS can help you obtain intelligent business insights. Theme Font size Line height
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TCS GenAI SDLC Assistant

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stories, and other artifacts generated. There has been increasing focus on leveraging coding assistants to enhance developer productivity, they impact only the developer activities and generally do not cover all software engineering phases such as requirements, user stories, and testing. To fully empower developers, their interactions with other key personas in the software engineering cycle such as product owners, architects, and test managers need to be simplified and integrated better. This can be achieved by equipping a developer with rich and granular knowledge about the application, new requirements, architecture, design, and other relevant changes. When TCS GenAI SDLC Assistant supports personas covering the entire SDLC—developers, product owners, architects, test managers and DevOps engineers—it adds to the quality of the artifacts produced and helps in building superior software. In addition, it helps reduce the time a developer spends on non-development activities such as understanding requirements, architecture, or design and on decision making. TCS GenAI SDLC Assistant, built on Google's Gemini model, complements Gemini Code Assist and provides software development assistance to help teams build high-quality applications faster, better, and more securely. TCS GenAI SDLC Assistant is the perfect companion for developers and delivery personas. It augments every role involved in the software engineering cycle in carrying out their daily responsibilities with contextualized knowledge, incorporated in a 'knowledge fabric'. The knowledge fabric is the backbone of TCS GenAI SDLC Assistant—woven with knowledge consolidated from across an enterprise. It brings together isolated information spread among different tools and data stores within the enterprise and builds a relation between these disparate data resources, to build the right context for Gemini. This enhances the accuracy of outputs and content generation from Gemini. The GenAI assistant, riding on the knowledge fabric and Gemini, augments the human potential to make informed decisions and build new, relevant, and rich content during every change cycle of the software. When implementing TCS GenAI SDLC Assistant, TCS assesses an enterprise's software engineering process and underlying toolchains. We design, develop, implement, and support an enterprise architecture that establishes a GenAI assistant customized for each persona and seamlessly integrated with the enterprise's SDLC tools and processes. Realize faster, high-quality software delivery, securely and at a reduced cost. TCS helps organizations get the most from AI by leveraging a multi-layered strategy that creates a foundation designed to accelerate productivity, quality, innovation, and performance. When you work with us, you stand to gain from our: Vice President and Global Head of Offerings, AI.Cloud, TCS By empowering every key persona with AI agents that integrate with an organization's processes, policies, and tools, we optimize the software development value chain—accelerating speed to production, improving efficiency, and enhancing the software development journey, while incorporating security, privacy, and responsible AI standards and guidelines." Vice President of Developer Experience, Google Cloud Gemini 1.5 Pro, Google's native multimodal AI model that powers Gemini Code Assist, offers the world's largest context window to process large-scale documents, thousands of lines of code, and streamline updates with deep understanding. We're excited to see partners like TCS bring in their own enterprise knowledge context to Gemini, empowering developers and boosting their productivity." Equifax UK uses Google Cloud to future-proof its business TCS Announces Generative AI

Partnership with Google Cloud and New Offering for Enterprise Customers TCS Wins Three 2023 Google Cloud Partner of the Year Awards Woolworths takes a fresh approach to data-driven retailing Learn more about how TCS can help you obtain intelligent business insights. Theme Font size Line height ======================

TCS FinOps Transformation for Google Cloud

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for joint accountability of cloud spend decisions. TCS FinOps Transformation for Google Cloud empowers enterprises to make data-driven decisions for their cloud investments. It enables organizations to forecast cloud budgets accurately and allocate cloud spend to relevant business units based on consumption parameters, promoting a culture of linking cloud investment to business value. Moreover, the framework equips enterprises to monitor and track their FinOps capability maturity level and cloud spend against internal and industry benchmarks, allowing them to take corrective actions if required. TCS FinOps Transformation for Google Cloud is a comprehensive framework that enables an organizational cultural transformation for adoption of FinOps capabilities to boost financial performance. As part of our advisory service, we collaborate with enterprises to help them navigate the complexities around FinOps adoption. By creating a blueprint that includes a multi-dimensional FinOps capability maturity assessment, followed by a clear and actionable FinOps adoption roadmap, we make the journey easier for enterprises. Our framework promotes best practices, standards, and education on cloud financial management for FinOps practitioners. Guided by this framework, we help enterprises build FinOps practices that accelerate business value. Our service includes: We leverage Google Cloud resources including Google Compute Engine, Google Kubernetes Engine, Cloud Storage, BigQuery, Cloud Composer, Cloud Logging, and a generative AI stack comprising Gemini and Vertex AI to generate insights and recommendations applicable to multi-cloud estates. TCS FinOps Transformation for Google Cloud also enables enterprises to analyze cloud usage and cost data through persona-based dashboards using BigQuery and Looker. Maximize the business value of your enterprise's cloud investment with TCS FinOps Transformation for Google Cloud. With TCS FinOps Transformation for Google Cloud, enterprises can quickly build FinOps practices that accelerate business value. They can: With the right blend of deep domain expertise, process and technology know-how, and proven tools and accelerators, TCS enables enterprises to accelerate their FinOps transformation journey. Here are some of the key advantages we bring: How AI will transform customer care Data and AI Services on Google Cloud to fast track data modernization TCS Announces Generative AI Partnership with Google Cloud and New Offering for Enterprise Customers Embracing data-driven retail to enhance customer experiences Learn more about how TCS can help you obtain intelligent business insights. Theme Font size Line height ======================

SAP on Google Cloud for intelligent enterprises

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Accelerate multi-cloud data modernization

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Woolworths takes a fresh approach to data-driven retailing

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looking for ways to unlock value from the data they have to gain a competitive edge. Woolworths recognized the importance of data as an asset and the need to build an analytical mindset across the organization. The retailer wanted to improve its data accuracy, speed, and availability to enable smarter, faster decision making in this fiercely competitive industry. However, Woolworths' digital core was built on outdated legacy systems, with company data held in siloed warehouses, from where it was supporting mission-critical reporting and analytics functions. This was coupled with the challenges of higher operational and maintenance costs, the need for an agile and scalable data platform was clear. To continue to meet the expectations of its people and customers, Woolworths needed to enable a common source of truth that could serve trusted, reliable data with real-time data integration across its value chain. This would deliver digital transformation and long-term scalability across its business. Embracing data-driven retail for improved decision making and enhanced shopping experiences. To grow and transform its data capabilities and meet the future needs of the business, Woolworths chose TCS as a strategic partner. Building on a 20-year partnership based on shared values and beliefs, the two companies embarked on a scalable cloud transformation, using an incremental and agile strategy. They collaborated to forge a roadmap for realizing a connected, reliable, and AI-driven retail experience, capitalizing on the power of Google Cloud as the unifying fabric. TCS partnered with Woolworths to establish the foundations of a common data platform and onboard key company data from its sales, finance, and supply chain business units. The platform enabled a company-wide data lake as a single source of truth with self-service analytics, empowering employees across business units to create new value. All data is now contained in a modern, scalable environment to inform stakeholders on everything from pricing and shelf usage to delivery management and staffing requirements. As a result, granular insights into challenges and opportunities are available in a much quicker and more cost-effective environment. "TCS helped us build a central data capability, leveraging the power of Google Cloud, to empower our business to make quicker decisions based on insights and evidence," said John Hunt, CIO and Director of Group Enablement for Woolworths Group.   With 90% of the company-wide data now onboarded onto Google Cloud, Woolworths has realized immense value in terms of on-demand availability of information, self-service analytics, as well as descriptive and prescriptive analytics, including the ability to leverage advanced artificial intelligence (AI) and machine learning (ML). Moving to Google Cloud has enabled a significant reduction in time to market, aligning with the agile demands of the business. As a result of the transformation, self-service analytics are three times faster, and advanced analytics use cases can be completed in a third of the time taken earlier. Disaster recovery time has also been drastically reduced from five days to just two hours. Disaster recovery time is down to just 2 hours from 5 days earlier. Self-service analytics is 3X faster. Advanced analytics applications are completed in 1/3rd of the time taken earlier. This foundational program has further enabled Woolworths to embark on a data-driven, decision-making journey. With its data migrated to Google Cloud, Woolworths can now localize its range of products and adjust its pricing within stores based on customer groups; improve performance across the supply chain; better predict seasonal sales patterns; and meet its sustainability goals. All this makes for

a more seamless, enhanced employee and customer shopping experience, giving Woolworths the desired competitive edge in a fast-evolving retail environment. Delivering a transformation like this in such a short time span takes a deep understanding of the retail space and our business. JOHN HUNT 01. Data and AI services Read about Data and AI service on Google Cloud that provides smart analytics to help enterprises accelerate data modernization and provide flexibility. 02. Industry solutions TCS' industry services on Google Cloud help enterprises in cloud migration, application modernization, and other services. Explore our services now. Visionworks works with TCS to enhance CX Cloud migration and Digital Transformation: TCS' End-to-end Services TCS OmniStore™ Now Available on Google Cloud Data and AI Services on Google Cloud to fast track data modernization TCS' Industry Solution on Google Cloud to Empower Enterprises Want to know how we can help you drive purpose-led growth? Theme Font size Line height ======================

Telia unifies API management

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TCS. Discover our press releases, reports, and company announcements. TCS helps the telecom major set up a cloud-based, scalable platform that boosts IT productivity. You have these already downloaded We have sent you a copy of the report to your email again. Telia required a unified digital platform to efficiently manage APIs. In the absence of an enterprise-wide API management platform, it was challenging for the independent IT units and projects of telecommunications company Telia to collaborate meaningfully. There were no developer portals through which APIs could be accessed and externalized. Without a defined lifecycle management system and documentation process in place, the APIs could not be optimally reused. Telia, therefore, needed a centralized development and access platform to manage and create APIs for its partners, and in the process, enable prototyping. TCS equips Telia with a robust API development and management platform. TCS stepped in to help Telia build a centralized, cloud-based API development and management platform with hybrid architecture and micro gateways, leveraging Apigee Edge. This would accommodate capabilities and features to develop, discover, document, and reuse APIs. Using a three-phased approach, TCS began the transformation process. The first phase defined API lifecycles, from development, release, management, to operations, and the tools required. This also required establishing governance guidelines in line with Telia's existing policies. During the next phase, TCS built the development and testing pipeline, and automated the relevant processes. The final phase dealt with developing advanced capabilities like API analytics and integrated monitoring with third party tools. Telia accelerates its digital journey with API management. With TCS' services, Telia was able to improve time to market, productivity, and cost efficiency. As a cloud-based solution, the Apigee API management platform was capable of integrating with third party vendors and extend Telia's digital presence. Cloud migration and Digital Transformation: TCS' End-to-end Services TCS Services on Google Workspace Data and AI Services on Google Cloud to fast track data modernization TCS' Industry Solution on Google Cloud to Empower Enterprises Want to get the innovation edge with cloud? Theme Font size Line height
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Unleashing the power of AI for business transformation

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be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. AI adoption is not a technology project, but a business transformation enabler. AI is everywhere—it has become part of our lives. And with advances in cloud and data technologies, we are now moving to the era of 'industrialization of AI.' The corresponding democratization of AI makes it an imperative to build trust through responsible practices. For enterprises, it's important that they don't look at AI adoption as a 'technology project.' They need to realize that AI is a 'business transformation enabler' and build the capability to scale AI. To delve deeper into what is required to bridge the 'scaling chasm', TCS collaborated with the Everest Group to develop a detailed report on how to make AI the key competitive differentiator. We believe enterprises should take a comprehensive approach that reimagines the foundational levers of people, processes, and technology. Some technology companies have taken the lead in bringing AI to life for enterprises through practical application. Google Cloud, for instance, makes AI adoption easier through its end-to-end AI platform Vertex AI. The solution takes care of the technical and arduous part of the AI journey, allowing enterprises to focus on innovation and value realization. For success in this new era, enterprises will need to think of AI as a key strategy pillar and a means of competitive differentiation. To find out how TCS and Google Cloud drives a comprehensive approach to scaling AI and fueling innovation, download the PDF. TCS, Google Cloud, and Everest Group share their visionary perspectives on how to embrace AI for business transformation. During this informative video, our panel of thought leaders explore why cloud, data and AI will continue to play a critical role in driving business transformation. TCS FinOps Transformation for Google Cloud TCS SDLC Assistant: A Perfect Companion for Developers, Delivery Teams TCS Mainframe Modernization on Google Cloud TCS Contact Center AI on Google Cloud Want to know how we can help you drive purpose-led growth?
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Cloudification of the digital core

Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy Future-proof your enterprise Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Cloud-based ERP helps drive innovation by building differentiated capabilities. More than 80% of enterprises believe that core ERP capabilities directly impact the top line, performance, and growth. However, less than 15% of enterprises believe that they have a future-proof platform. To understand this gap and explore why enterprises need to adopt a cloud-based ERP model, TCS sponsored an Everest Group research report.   We found that enterprises that have a cloud-based, secure, agile, and resilient ERP will outperform peers, and be better positioned to serve the future needs of employees and customers. Based on this research, we recommend a two-step approach to build a cloud-based ERP core, leveraging cloud service providers such as Google Cloud: Cloud for efficiency: Lift and shift of legacy workloads to the cloud to meet enterprise goals of lower total cost of ownership (TCO) and improved operational efficiencies. Cloud for innovation: Leverage extended cloud capabilities to drive enterprise innovation. TCS believes that organizations need to transform now, begin their cloud ERP journey, and rapidly build newer capabilities to stay relevant

in the market. To learn how TCS and Google Cloud are helping companies extend the value of cloud so they can innovate and realize their true business potential, download the PDF. TCS, Google Cloud, SAP and Everest Group share their perspectives on how to unlock business value and future-proof your enterprise. During this insightful discussion, market dynamics, enterprise approaches, and the benefits of transforming now are discussed. Hyperoptic Accelerates Digital Transformation SAP on Google Cloud for intelligent enterprises Star Performer in SI Capabilities on Google Cloud by Everest Unleashing the power of AI for business transformation Want to know how we can help you drive purpose-led growth?
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How AI will transform customer care

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Srivastava Vice President and Global Head, Google Business Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. So far: streamlined interactions, more effective and productive agents, and more efficient operations Companies are using AI to reinvent their customer care operations. Advancements in natural language processing has enabled them to more effectively convert speech to text, text to speech, make decisions, and have virtual agents help customers. Take, for instance, the contact center transformation. With the world's buying and selling patterns becoming much more digital, the need to provide customer assistance remotely has grown exponentially. In response, companies stepped up their investments in AI tools that can answer customer queries on their own and point customers to the right resources to solve their problems. This includes using AI to help provide a smooth handoff when customers need to be transferred from their first point of contact, a bot, to a live agent. AI is also helping make customer care agents more productive and agents' daily work experience more rewarding by taking over the routine and repetitive aspects of agents' jobs. This frees up agents to focus on creative problem solving in complicated situations that machines can't handle. Even so, AI can still provide valuable assistance to the agent by delivering information and insights that can help guide agents to the right solution. Such human and machine collaboration not only helps customers get what they want more quickly, but also enables companies to cut the costs of typical contact center processes by as much as half.   What's next: proactive and, eventually, virtual reality engagement As AI continues to expand its influence in customer care, and as the technology gets increasingly better at recognizing human emotions, we'll see many more tasks getting automated and an accompanying rise in the quality of work and customer care overall. But even more exciting things are on the horizon: a shift from reactive interactions to proactive engagement. Imagine the impact when AI bundles highly relevant offers and recommendations that anticipate what customers need based on buying patterns and personas. In retail, AI could provide personalized gift recommendations or, using what it knows about customers and their preferences, curate an ongoing list of goods and services from across industries that specific customers would be interested in. Travel is another area where AI offers huge potential to help customers, serving as a personal travel agent of sorts. AI can cross-reference the extensive data it has on a traveler with all the data available on hotels, flights, destinations, and attractions, and offer suggestions for trips people would find enticing. And it can book the entire trip for them if they choose. Healthcare will similarly benefit. AI will be able to crunch a wide range of patient and other data to continually give patients suggestions for improving wellness to prevent disease. And just as AI is increasingly helping customer care agents find the right solution, AI supports physicians in their treatment of patients. The technology gathers and presents the right data and information on each patient's health profile, the latest treatments for their conditions, and how conditions could manifest themselves over time based on patients' demographics and lifestyle.   With all this at their fingertips, doctors can quickly and easily personalize treatment options and other recommendations for each patient, at scale—leading to far better healthcare outcomes for patients. AI has the medical industry on the cusp of truly huge leaps in not just the patient experience, but also how long—and well—patients can live. Driving all this will be an explosion in cloud-native

development of AI-ML applications, thanks to the myriad tools available on different public clouds that will effectively democratize the use of AI across the business. These tools are taking AI out of the realm of labs and making it possible for anyone to quickly create useful AI applications that solve business problems. Driving all this will be an explosion in cloud-native development of AI-ML applications, thanks to the myriad tools available on different public clouds that will effectively democratize the use of AI across the business. These tools are taking AI out of the realm of labs and making it possible for anyone to quickly create useful AI applications that solve business problems. AI has the medical industry on the cusp of truly huge leaps in not just the patient experience, but also how long—and well— patients can live. AI-driven customer care transformation in action Google Cloud's Contact Center AI (CCAI) is a good example of such tools. CCAI helps companies improve customer service with AI that understands, interacts, and talks. It enables companies to create in minutes advanced virtual agents that seamlessly switch between topics, handle supplemental questions, and operate across multiple channels 24/7 to minimize live agent interventions. CCAI Insights uses natural language processing to identify call drivers and sentiment that helps contact center managers learn about customer interactions to improve call outcomes. A major retailer is using CCAI to transform its legacy switchboard-based, human-operated contact center into an AI-driven one. Prior to the deployment of CCAI, the retailer had a cadre of agents whose primary role was to identify customer issues and manually route 150,000 calls weekly to the right team. The result was an inconsistent experience and potential lost sales opportunities. Now, the CCAI's voice automation solution handles these calls, directing customers to the appropriate service point, and providing self-service to get relevant store information. Not only does the solution accurately identify customer intentions in 95% of the calls, it gives the retailer rich data on and insights into its business it could never get with humans manually answering and transferring calls. Plus, the retailer was able to redeploy 130 switchboard employees to highly valuable customer-facing, in-store roles and generate significant operational cost savings. This retailer's experience is just one example of how AI can help companies reinvent the way they care for customers—and how cloud-based AI platforms can accelerate the adoption of transformative AI tools. TCS recognized as a leader in Google Cloud ecosystem Innovate with TCS' Data and AI Services on Google Cloud Infrastructure modernization on Google Cloud TCS OmniStore™ now available on Google Cloud No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =======================

AI's impact on the future workforce

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/ google/white-paper/ai-ml-impact-future-workforce ----- Highlights In this article AI is transforming lives As every business becomes an AI business, the technology will have a tremendous impact on the workforce, says Nidhi

Srivastava, Vice President and Global Head, Google Business Unit, TCS, in this interview with CIO. Democratization of AI Reskilling the workforce Trust is key Stay in the know TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. A TCS-sponsored CIO article You have these already downloaded We have sent you a copy of the report to your email again. You have these already downloaded We have sent you a copy of the report to your email again. AI is already an intrinsic part of our lives. Some of the most prominent use cases are so pervasive that we don't even think about them, says Nidhi Srivastava, Vice President and Global Head, TCS' Google Business Unit. We think nothing about letting a smartphone app guide us to a destination a hundred miles away and trusting it to find the shortest possible route. Machine learning algorithms power search engines with the uncanny ability to know what we're looking for even if our search terms are vague. At work and within the workforce, the AI transformation is already taking place, as evidenced by the fact that 91% of organizations have adopted, or plan to adopt, a "digital-first" business strategy, according to the Foundry 2021 Digital Business Study. With organizations starting to see AI as an enabler of business transformation, the scope and influence of AI in businesses across all industries will increase exponentially. AI for all is becoming a reality with low-code and no-code programming tools. AI helps organizations move from intuition-based decisions to decisions supported by facts and intelligent predictions. Low-code and no-code programming tools are helping in this transition—they are enabling people with little technical knowledge to use AI. For example, Google Cloud offers an AI and ML platform that allows scalability and democratization to accelerate an

organization's transformation journey. There's no doubt that AI is bringing about fundamental changes in our ways of working. Those changes will extend to an organization's entire workforce, as AI is scaled and becomes more embedded in the day-to-day business. Preparing the workforce to help them adapt to the changes AI brings is key. Organizations must get ready now for the impact on their business and workforce. They must prepare themselves and their people for the transition with the understanding that while some jobs will be lost, others will be created. They shouldn't hold back this impending change but rather equip people to navigate it. Many of the jobs AI creates will require specialized technical skills. Leaders must be realistic about the roles that could be eliminated and formulate strategies so that those individuals with the aptitude and ambition for AI can develop those skills. A concerted focus on managing people through this change is critical. This includes providing training that strikes the right balance between helping employees understand AI's immense potential to drive innovation and growth, and giving them the information and tools they need to use AI responsibly. Empowering people to experiment with AI is important, so is helping them to use AI responsibly. Establishing robust guidelines for AI governance is imperative. Algorithms are only as good as the data they are given, so organizations must constantly monitor the quality of data used to train AI models to ensure against bias. AI-driven decisions must also be transparent so that people can fully understand how they were reached. Algorithms must never become a "black box," as any evidence of bias or error can undermine confidence in the entire system. Finally, as organizations continue to explore how to use AI more effectively, they need to keep in mind the evolutionary nature of AI's impact. While AI is now commonly used in key areas of the business, that progress didn't happen overnight. Organizations should foster an environment in which teams are continually empowered to experiment with AI tools to find new ways to capitalize on AI's power and can independently explore, ideate, and implement use cases specific to their needs. To learn more on the impact of AI on the workforce, download the PDF. AI won't be a big bang; it will be a growing part of our daily routine and all of these opportunities are underpinned by cloud Nidhi Srivastava TCS Services on Google Workspace TCS SAP Application Migration to Google Cloud Innovate with TCS' Data and AI Services on Google Cloud TCS Wins Two Google Cloud Partner of the Year Awards Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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AI and the future of business

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Highlights In this article An AI-powered future Leaders huddle on AI Revolutionizing industries Banking on AI AI and the future of retail Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Not machines versus man, but humanity enabled by AI Helping battle cancer and improve patient experience Driving financial inclusion and empowering millions Thanks to AI, everyone will participate in the future of retail. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Excerpts from a TCS-sponsored article in The Wall Street Journal 3 MINS READ You have these already downloaded We have sent you a copy of the report to your email again. After decades of talk, research, and experimentation, AI is finally taking off, as companies deploy the technology in very significant ways to transform how they do business. Examples of transformative AI are everywhere—from biometric facial recognition on our smartphones, to predictive maintenance for equipment and facilities, to personalized customer experiences. And yet, despite all the advances, we've only really scratched the surface of AI's potential impact. There's so much more to come. Instead of a future in which machines replace people, we are approaching an era of humanity enabled by AI. Bullish on AI making life better for everybody Nidhi Srivastava, Vice President and Global Head, Google Business Unit, TCS, and Scott Penberthy, Director of Applied AI, Office of the CTO, Google Cloud, explore the myriad possibilities of AI-powered business transformation—focusing on how AI will change our world and the industries where the technology will push the limits of the imagination. Excerpts from the insightful conversation between the two leaders: Please give us your high-altitude view of how AI will change our world. Nidhi Srivastava: I am very bullish about what AI can do

for us in terms of transforming our work lives, our personal lives and making life better for everybody. There are risks, but I believe fundamentally in AI's ability to enhance the beauty of the human mind. The possibilities are endless, from biometrics that streamline air travel to humanoid robotic tour guides. And thanks to exponential growth in the accumulation of data (and our ability to process it with cloud computing), all services from finance to mobility and healthcare to retail will be integrated in one single ecosystem. All these opportunities are underpinned by cloud.   Scott Penberthy: It's 'the great blending' right? And we see evidence of this already with the rise of super apps. And it's all about the data. Companies are all going to be on the cloud—a hop skip and jump away from integrating their data in a one-stop shop. The changes I'm excited about? For me, the big AI revolution in business is cutting out the drudgery. Imagine cutting the costs of a process in half, while boosting quality, and making customers happier. Like Nidhi says, you have a beautiful mind—you don't want to spend it on tax regulation releases. How will AI revolutionize healthcare? Scott Penberthy: We're transitioning from an age of sick care to wellness care. Instead of a progression where you start to age, get gray hair, develop a chronic disease —and die—AI will start enabling us to reverse the process. The reason we're able to do this is that genetic sequencing—something that used to take a billion dollars in a decade—is coming down to the price of a latte. For example, we're now seeing the source code for cancer. We don't know yet how it works, but we're starting to tweak things, seeming to make cancers go away. Nidhi Srivastava: Like you Scott, I'm very excited about the potential of AI to diagnose cancers, to get to the point where cancers are treatable, or you can pretty much avoid them. I'm also excited by the ability of AI to improve the patient experience at hospitals. For example, checking into the hospital and having the entirety of your medical history, and genetic data, available at the doctor's fingertips. How can AI transform banking and finance? Nidhi Srivastava: In banking, conversational AI is going to empower millions of people in poor countries by enabling sophisticated mobile products, without needing any form of literacy, digital or otherwise. You'll be able to consume these products from the village kiosk, or from the airport. Banking products will be completely digital, eliminating the need for physical banks altogether. This will level the financial playing field for people in the world's remotest places, enabling their participation in the global economy.   Scott Penberthy: It isn't easy when you're young, to make responsible choices that add up to a secure future. AI banking assistants are transforming this. Imagine an app that gives you nudges, like 'hey, you spent a little too much at the restaurant last night; why don't you put ten dollars in savings.' Then another nudge saying, 'I'll spot you the ten bucks, but you've got to put 10 percent of your next paycheck into savings.' Six months later you've saved $500. AI will bring new generations a more seamless path to a secure future. What role will AI play in the future of retail? Nidhi Srivastava: Pretty soon, AI will know your tastes and preferences better than your spouse does, and that will radically personalize the retail journey. Meanwhile, advances in natural language processing (NLP) and sales bots will mimic a human-like experience at scale. This retail future is going to be exciting because each of us, around the world, will participate. AI is optimizing logistics to such a degree that the world truly is becoming a global village. It's bringing buying and selling power to the entire world. What makes this transition possible? One key is more virtual reality and

augmented reality in e-commerce, which means you can try things on for the look, the feel, the rustles—without visiting a store. Scott Penberthy: The other big trend I'm seeing in commerce is the metaverse—immersive online worlds where data integrates with VR experience. It'll give rise to the creator economy, where retailers can curate the content of people with amazing creative powers. This is one more key way in which AI is empowering what Nidhi calls 'the beautiful human mind.' From healthcare to the future of work, AI promise to be synonymous with humanity 2.0. With global partnerships, such as TCS and Google Cloud, it can be a life-enhancing and mind-expanding journey for all of us. I am very bullish about what AI can do for us in terms of transforming our work lives, our personal lives and making life better for everybody. NIDHI SRIVASTAVA Unleashing the power of AI Embracing data-driven retail to enhance customer experiences Data and AI Services on Google Cloud to fast track data modernization TCS BaNCS Now Available on Google Cloud: Helps Financial Services Firms Innovate and Scale Faster Want to know how we can help you drive purpose-led growth? Theme Font size Line height ======================

How hyper-automation enables resilience and boosts growth

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/google/white-paper/hyper-automation-future-enable-resilience-boosts-growth ----- Highlights In this article Welcome, hyper-automation New opportunities Boost from the cloud Be future ready Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Nidhi Srivastava Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights,

analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Nidhi Srivastava Vice President and Global Head, Google Business Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. Embracing hyper-automation for speed, efficiency, and accuracy Digital transformation across companies and industries has exponentially accelerated and so has the rate of automation. The typical business as we know it could be 40% to 60% automated within five years. That's a massive jump from where we are today, but it's a realistic estimate given the speed of what we call hyper-automation. Hyper-automation is when automation of business processes across the enterprise increases to the extent that entire processes—not just pieces of them—are fully automated, with no human intervention. It's the next logical step from automating specific, routine, repetitive activities with robotic process automation. Here, the focus is on completing tasks more quickly, efficiently, and accurately, and freeing up people's time for higher-value pursuits. Hyper-automation will increase exponentially across all industries. Enterprises must embrace it for speed, efficiency, and accuracy. With hyper-automation, companies are taking aim at other parts of processes where judgement and higher-level decision making are needed. Coming to their aid are increasingly sophisticated artificial intelligence (AI) and machine learning (ML) solutions to automate processes from start to finish. Hyper-automation use cases are rising across industries, boosting productivity and business resilience. With advanced AI and ML now easily within reach for most organizations via the cloud, the number of use cases for automation across industries is multiplying quickly. This points to the future in which a large part of all business processes will be fully automated, leading to greater productivity and efficiency, better customer experience, and stronger operational resiliency. Think about the consumer goods and retail industry. There's a tremendous opportunity for companies to use AI and sensors in distribution to continually monitor and tweak temperatures in trucks to ensure products don't get spoiled. In asset-heavy industries such as manufacturing, energy, utilities, and transportation, AI-based computer vision—coupled with drones and machine learning—is enabling companies to visually inspect equipment, power lines, and other assets in remote or potentially dangerous terrains without having to send technicians for manual inspections. And in the upstream supply chain, AI can anticipate an impending disruption, model potential impacts on a company's ability to purchase specific products or materials, recommend the right response to expedite supply chain decisions—or, in some cases, even act on its own by creating a self-learning supply chain to minimize the effects on business. Cloud makes hyper-automation more accessible and affordable. The cloud provides a strong foundation for hyper-automation, automating the process of storing, digitalizing, managing, and accessing data. It offers companies with access to state-of-the art automation tools and the ability to experiment with cloud-native features to rapidly create new capabilities. It ensures scalability, flexibility, security, and access to new and emerging technologies, such as artificial intelligence (AI), robotic processing automation (RPA), and machine learning (ML), to run automated processes and propel innovation.

With innovative offerings from leading cloud providers like Google Cloud and experienced partners like TCS, companies are deploying automation to multiple new use cases, enabling them to improve entire business processes in a cost-effective and quick manner. A leading European airline, for instance, was facing a significant shift in how customers wanted to interact with the company. Instead of relying solely on interactive voice response (IVR) channels, customers were increasingly using social media channels such as Facebook, Twitter, and WhatsApp. The airline wanted to design and implement customer service functionalities within social messaging platforms to maximize its reach with customers and enhance customer experience. For this, the company built a multi-lingual, multi-platform social media assistant, leveraging Google Cloud's native contact center AI and natural language processing features. Chatbots were developed to respond to customer queries, collect missing data, and provide updates on flight and passenger status. The underlying eight AI engines handle nearly 150,000 queries per month—a 4x increase in message volume and 3x boost in the number of users—with no additional customer service resources. Applying hyper-automation to critical use cases aligned to business priorities is the way forward. Many organizations have adopted smart analytics tools, AI, and ML to make sense of data and transform the way they engage with customers, operate internally, and interact with their partners. And cloud is playing a key role in helping businesses adapt to this change. It has democratized access to cutting-edge AI and ML-powered tools that enable organizations to drive better business outcomes. In the process, cloud is also fueling the surge in AI adoption and hyper-automation. Experts believe that hyper-automation will become key to survival for businesses. In fact, Gartner predicts that by 2022 businesses worldwide would have spent $596.6 billion on technologies that enable hyper-automation. Furthermore, by 2023, cloud-based AI services are expected to grow nearly five times greater than today. Companies need to begin preparing for this future now and ensure they are not left behind. They need to prioritize where they should apply hyper-automation—the critical use cases—in line with their business priorities and strategies for growth. They need their leaders to champion the change and rally the organization to bring these use cases to life. And they need to acquire, develop, or borrow from external partners the skills needed to keep pace with technology changes that are sure to come. Hyper-automation is coming. Are you ready to embrace it? How AI will transform customer care Designing ethical and explainable AI for the benefit of humanity AI-powered Business Transformation: What the Future of Business Holds Data and AI Services on Google Cloud to fast track data modernization Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height
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Pave your path to value with AWS Cloud

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capabilities TCS' industry solutions powered by AWS Insights Belief in action Benefits Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Consulting and advisory Cloud operations Collaboration and CX transformation Enterprise modernization Edge computing and IoT Foundation Industry solutions Migration Mainframe modernization Industry cloud Cloud value Automated travel Smart energy platform We are an AWS Premier Tier Services Partner with demonstrated competencies in: We have proven service delivery expertise in: Data and analytics Operational excellence Migration Security In the news Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cloud / TCS and AWS Cloud TCS Intelligent and Integrated Cloud Adoption Platforms on AWS You have these already downloaded We have sent you a copy of the report to your email again. Together, TCS and Amazon Web Services (AWS) help you craft your journey of transformation on cloud with clarity. We bring you the best of TCS and AWS to help you leverage the unifying digital fabric of cloud for continuous innovation that redefines value chains, delights customers, and impacts lives. Innovation with a builder's mindset Unique transformations on cloud Contextualized for industries Relationships built on trust We help you build your digital core, innovate business models, transform, and grow around purpose-led ecosystems. 01. Consulting and advisory Develop strategies for holistic cloud transformation, with end-to-end services for cloud operating models, security, operations set up, digital process enablement, and cloud value realization. 02. Cloud operations Simplify hybrid cloud orchestration with a Machine First™ approach, powered by TCS' Cloud Exponence platform. Make the most of SAP application management services and SAP BASIS support with our

industry-leading delivery and operations management capabilities. 03. Collaboration and CX transformation Deliver a unified omnichannel user (agent) experience with our AI-based self-service capabilities. 04. Enterprise modernization Build a resilient and future-ready architecture, leveraging cloud-native infrastructure, automation, and reusable and ready-to-deploy components, including AWS containers and AWS serverless microservices (chassis) platform. 05. Edge computing and IoT Enable collaborative ecosystems and cloud computing at the edge to create hyper-personalized customer experiences with intelligent products, connected plants, connected services, and product life cycle management. 06. Foundation Rapidly define, design, and deploy AWS foundational platforms and services for cost management, continuous improvement, and security using services powered by TCS Cloud Foundation and reusable infrastructure as code (IaC) templates. 07. Industry solutions Accelerate business transformation with next-gen products and platforms contextualized for industries. 08. Migration Reimagine enterprise applications, data, or infrastructure with automated cloud migration services. 09. Mainframe modernization Transition seamlessly from legacy applications and systems to microservices-based cloud architectures by leveraging automation and AI.   Why it's time to go for industry cloud Achieve tangible value with a metrics-driven cloud model Health check-ups for your car, on the cloud Powering change for utilities with cloud and IoT Our strategic partnership with AWS enables us to provide a holistic experience and clear value path to enterprises in their growth and transformation journey on the cloud. KRISHNA MOHAN REDDY Devops Financial services IoT SAP Security Storage Travel and hospitality Cloud operations Data and analytics Mainframe modernization Conversational AI Supply chain Automotive Telecom Manufacturing and industrial services Amazon API Gateway Amazon Connect Amazon EC2 Systems Manager Amazon EMR AWS Lambda Amazon RDS AWS Database Migration Amazon Redshift AWS IoT Core Amazon EKS AWS Transfer Family Amazon QuickSight Amazon Kinesis Amazon MSK Amazon OpenSearch AWS Glue Delivery   Achieve sustainable and purpose-driven value.   TCS at AWS re:Invent 2024: Explore Latest AI Innovations TCS at AWS re:Invent 2022: Network and Engage with Industry Experts TCS Joins Hands with AWS to Help Enterprises Harness the Power of Quantum Computing Randstad Expands its Strategic Partnership with TCS to Modernize its Digital Core TCS Positioned as a Leader and Star Performer in System Integration Capabilities on AWS by Everest Group Theme Font size Line height Want to know how we can help you chart a path to cloud value with AWS? =====================

BASF makes big strides in digital farming with AWS Cloud

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difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS and AWS Cloud / Case study You have these already downloaded We have sent you a copy of the report to your email again. Enabling farmers to make smarter decisions The largest chemical producer in the world, Germany's BASF helps farmers get innovative. ASF focuses on sustainable approach to help them use digital technology to make more informed decisions. BASF had developed xarvio®—a digital farming solution to help monitor weather and identify problems like crop disease and pest presence in fields. Using real-time field photos and field monitoring, farmers can instantly receive information about their crops, optimize protection, and improve their bottom line. To better serve the agricultural industry, BASF wanted to tap deeper into the power of automated data management and cloud with xarvio®. The goal: a central, secure cloud-based repository from where stakeholders could safely and quickly access different types of data. Leveraging advanced AI technologies, the data can then be used for automated weed identification, disease recognition, leaf damage identification, pest monitoring and crop emergence analysis (counting of the number of plants that have emerged within a one square meter area). Boosting farm productivity with cloud, AI, and analytics BASF, along with TCS and AWS, jointly designed and developed a cloud-based data approach for faster crop insights. The AWS-powered solution helped BASF roll out highly accurate agronomical models for precise image classification. This solution can automatically query field data for weed identification, disease recognition, leaf damage check, and pest monitoring. The tool can also quickly tabulate nitrogen status data—an important marker of plant health—and perform emergence analysis. Artificial intelligence (AI), coupled

with machine learning (ML) and improved data operations, enhances xarvio's ability to easily analyze various data streams. The cloud-based data platform also combines analytical tools to provide intuitive, descriptive, operational and historical data visualization. The approach uses Amazon DocumentDB on AWS to ingest thousands of daily images into Amazon S3 storage buckets. The ingested data is then divided into formats that provide end users with a treasure trove of agricultural insights. TCS helped to configure a data search engine with Amazon Elasticsearch that enables users to gain field-related insights. Proactive crop health support to farmers With the suggested approach, BASF is enabling farmers to improve crop health and boost yield and profit. Thanks to it, BASF is also contributing to solving the food challenge for the world's growing population, sustainably. Data lake scaled operations to millions of data records. Real-time notifications to farmers on the health of their crops, weather, and more. Data services and more accurate AI-ML models for precision agronomic diagnostics help farmers take timely action. Farming-related recommendations are delivered in real time. Visualizations based on images, geo-location and meta data help in better interpreting insights from data to farmers. Improved performance of querying and searching statistical data, resulted in real-time building of crop solutions xarvio® has created real-time farming insights at scale by combining AI, data operations and analytics on AWS Cloud. Jörg Wildt Transforming the way people enjoy water TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Life insurer adopts a zero-trust framework

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over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. A large life insurance firm wanted to ensure network security and reliability to protect proprietary business information from cyber-attacks and data leaks. They needed to secure data movement on internal networks and strengthen network traffic security of their AWS environment. However, the company's security controls were configured to exclusively check communication flows over public internet, and between their data center and AWS cloud. Additionally, most of the east-west traffic was never inspected for security. With the expansion of workloads on AWS, the company wanted to segment the cloud network to mitigate the insider attack threats. Further, they wanted to add a security layer to their internal AWS network traffic to completely thwart attacks. TCS designed and implemented a zero-trust framework to protect the client's network architecture and prevent data breaches. TCS leveraged network segmentation to prevent the lateral movement of unauthorized access, thereby ensuring threat prevention for enterprise applications and simplifying granular user-access control. By building a transit gateway to inter-connect the client's virtual private clouds and multiple cloud accounts such as shared accounts, production accounts, non-production and security accounts, and consolidating the connectivity through a hub-and-spoke model, TCS secured the traffic exchanged among the client's cloud accounts. The setup ensured that the traffic would first be sent to the transit gateway to be inspected by the firewall and that every network packet exchanged among the accounts would be scanned by the firewall, including hidden malware within encrypted data, to safeguard from cyber-attacks. Zero-trust security initiative helps in preventing data breaches. BFSI firm adopts best security practices TCS helped the client strengthen the network security of their AWS environment by implementing data privacy controls across its multiple cloud accounts. TCS ensured that the internal AWS traffic was scanned to mitigate cyber-attacks and prevent unauthorized access. TCS helped the client gain the following benefits: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS BFSI firm adopts best

security practices Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height
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Insurer builds central access management

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had also started using identity access management (IAM) roles for cross-account access, which was a complex process for a large number of user accounts. The insurer wanted to leverage active directory credentials to manage user permissions due to the increase in user accounts. TCS built a multi-account architecture with AWS Organizations. TCS built a hybrid cloud setup in AWS to enable centralized user access to AWS resources and permission management. TCS leveraged Direct Connect to connect with the client's on-premise Microsoft Azure Active Directory, and used AWS Organizations to build the account structure comprising security account, shared account, and prod and non-prod accounts. TCS made use of AWS Single Sign-On and its integration with AWS Organizations to centrally manage access to multiple AWS accounts and business applications by providing users with a single sign-on access to all their assigned accounts and applications from a central location. By helping the customer build a multi-account architecture and ensuring identity and access management, governance, data security, network design, and logging, TCS helped create multiple accounts and subsequent new accounts within the same organization in significantly less time. Leveraging AWS Single Sign-On, the insurer simplifies user sign-in experience. TCS leveraged AWS Single Sign-On in a hybrid cloud set up to build a single sign-on experience for the users. By providing secured access to AWS enterprise resources, TCS ensured a breach-proof security posture and helped the client achieve centralized user access and permission management.   Harnessing the cloud for underwriting TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height
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Fluidra transforms the pool experience with AWS-powered IoT

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way people enjoy water Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. A leading global manufacturer of pool and spa products, Spanish multinational Fluidra strives to create the perfect pool experience for its customers. Enhancing their comfort and enjoyment is a top priority for the company. And so, it has always focused on innovative solutions for clean swimming pools and spas. With a product line that extends from pool pumps to chlorinators and robotic cleaners to devices powered by IoT, analytics, and cloud computing, Fluidra enhances experiences through technologically advanced, sustainable solutions that transform the way people enjoy water for recreation and health. A pioneer in connected pool products, Fluidra had created an IoT platform that became fragmented over time due to multiple rebuilds. To enable seamless integration with third-party home automation devices, Fluidra decided to partner with TCS. Leveraging AWS cloud, TCS and Fluidra made the connected pool platform robust, scalable, and secure. The solution enables two-way communication with devices, remote equipment monitoring, and predictive and proactive maintenance of pool equipment while simplifying pool management. Reliable and easy to maintain, the new platform supports remote diagnostics and remote control of pool settings by pool owners and ensures 24x7 alerts and insights—even during downtime. Secure IoT infrastructure on AWS, along with native AWS services such as Amazon GuardDuty, AWS Security Hub, AWS IAM Access Analyzer, and AWS Firewall Manager, enables centralized monitoring and alerts. Scalable IoT workload environment set up using AWS Lambda allows on-demand provisioning of compute resource. With the help of AWS IoT Core a cloud gateway to connect Fluidra's IoT devices was enabled. The AWS IoT Core service helps overcome infrastructure management overheads. Batch analytics and dashboards for data management supported by the platform include services such as Amazon Simple Storage Service to set up data lake, AWS Amazon Kinesis to create a data pipe to the data lake, AWS Glue services for extract, transform, and load (ETL) operations, AWS Redshift for Data warehouse, Amazon Athena to query results from data lake, and AWS Simple Notification Service to generate user notifications. The solution enables

Fluidra to connect five million devices across geographies and deliver 24/7 availability of pool services to its end customers around the world, creating a strong competitive advantage for itself and high-entry barriers for its competitors. It: By partnering with TCS, Fluidra is able to provide a superior experience for our clients through connected, available, and reliable pool devices. AWS IoT helped us get the best-in-class solutions to meet the set goals. KEITH MCQUEEN Towards automated travel TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Transforming Avis' rate shop using AWS Cloud

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/aws/ case-study/avis-group-legacy-modernization-transformation ----- Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy Grow, Innovate, and Transform with TCS and AWS Cloud Highlights In this article Challenge Solution Benefits What the client says Case study Related reading Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. With end-to-end legacy modernization, Avis Budget Group aimed to accelerate growth. TCS helped transform Avis' Rate Shop through mainframe modernization using AWS cloud. TCS helps Avis achieve faster time-to-market with zero system downtime. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you

deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS helps upgrade the car rental firm's applications through mainframe modernization You have these already downloaded We have sent you a copy of the report to your email again. Avis Budget Group is one of the world's largest car rental companies operating in 180 countries from over 11,500 locations. Avis is focusing on reinventing the car rental experience through data-driven intelligence, and enabling connectivity, convenience and choice through digitalization. To keep pace with the changing industry dynamics, Avis needed to transform its legacy mainframe platform. Rate Shop, the company's primary revenue-generating product, needed to be re-architected to be cloud-ready and provide the flexibility to adjust pricing in real-time to drive optimal demand and meet customer expectations. Rate Shop accounts for 70% of the transaction volume on Avis' IT systems, growing on an average of 25% annually. Re-architecting to a cloud-based environment was a necessity to meet such demand. Along with the immediate goal of reducing operational and licensing costs of legacy applications, Avis also required a seamless cloud migration journey to scale customer engagement and overcome technical debt. TCS partnered with Avis to transform Rate Shop from a legacy assembler-based, tightly coupled application, running on the mainframe, to a modern C-based application running on the AWS cloud. As part of this transformation, TCS migrated more than 250 legacy databases (DB2 and IMS) to high performance Couchbase database technology on AWS EC2 (elastic compute) cloud instances. IBM's data replication product, CDC (change data capture) in conjunction with Apache Kafka was leveraged to replicate very large data volumes from the mainframe to cloud in real time. TCS worked with Avis to design a highly resilient, highly available solution that enabled a low-risk iterative rollout by channel and segment. Using its agile methodology, TCS architected Rate Shop to the AWS cloud to kick start Avis' digitalization journey. This approach enabled TCS to successfully execute the Rate Shop cloud migration program in just eight months. TCS implemented real-time analytics of Rate Shop operations that resulted in a seamless end user experience on AWS. This fueled the on-demand pricing decisions and timely vehicle availability to match customer needs. To meet the sub-second Rate Shop response time needs, Amazon ECS, Auto Scaling, Elastic Load Balancer, ElastiCache and CloudWatch services were used. The team established a comprehensive DevOps foundation to automate key tasks related to application integration, cloud provisioning, application configuration, and test case execution. With this implementation, Avis' ongoing integration and deployment needs were automated and scripted by leveraging native AWS CodeCommit in combination with Jenkins. This also provided greater security controls of the code migration process. TCS was involved from the ideation stage to incubation and initiation for the mainframe modernization at Avis. Post incubation, TCS successfully helped Avis re-engineer an improved customer experience model for its ongoing digital transformation across the enterprise fostering purpose-led growth. TCS' domain knowledge of our systems combined with their agile approach has contributed to our success and earned our trust Gerard Insall Mainframe modernization using AWS cloud TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy

Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Financial services firm secures data transactions on cloud

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establish a DevOps model and an automated infrastructure to accelerate digital transformation and create innovative applications. TCS leverages AWS cloud-native services for secure sharing of data. TCS ensured secure data share through Secure-Shell File Transfer Protocol (SFTP) using AWS Transfer Family, a fully-managed service that enables secure transfer of files into and out of AWS Cloud infrastructure to external entities. This not only fast tracked uploading of files from on-premise internal applications to AWS cloud storage, but also set the stage for a subscription-based data distribution platform where external partners could seamlessly consume data for day-to-day business operations. This helped the client share and receive data securely from a large number of partners. TCS augmented the internet-facing SFTP endpoints with AWS Global Accelerator, AWS Web Application Firewall (WAF) and AWS Shield Advanced, following a Defense in Depth strategy. This ensured protection from emerging cyber-threats such as DDoS (distributed denial of service) and Open Web Application Security Project's (OWASP's) top 10 vulnerabilities. The on-premises middleware applications were modernized with AWS Lambda serverless functions. TCS built an enterprise-ready, dynamic deployment pipeline for the AWS Lambda services by setting up Jenkins Continuous Integration (CI) pipelines combined with open-source tools to scan and identify vulnerabilities in code or third-party libraries used in code. A data distribution platform allowed third-party vendors to access and share data. TCS helped the client achieve an improved security posture for all data transactions on AWS Cloud. A subscription-based data platform enabled the financial services firm to leverage a larger ecosystem, while a DevOps approach allowed innovations to deliver customer value. BFSI firm adopts best security practices TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

European bank secures banking services, goes digital

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/aws/ case-study/industries-banking-financial-services-success-story ----- INDUSTRY Banking Services Transformation: Unlocking Exponential Value Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy Grow, Innovate, and Transform with TCS and AWS Cloud Highlights In this article Challenge Solution Benefits Value delivered Case study Related reading Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global

change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements.   You have these already downloaded We have sent you a copy of the report to your email again. The client needed to build new digital capabilities on cloud. A leading European bank wanted to digitize its core banking system to offer functionalities such as payments, loans and credit processing through online and mobile channels. They wanted to build a scalable distributed banking system for greater agility and increased transactional speed. The legacy architecture did not support frequent release of next-gen applications and features. There was a need to build new digital capabilities with better security, scalability and availability without incurring any downtime post digitalization. The banks deploys microservices in Kubernetes cluster for secure and upgraded architecture. TCS elevated the security posture of the bank, which helped to reduce the cyberattack surface, without any service disruptions. TCS re-architected Java applications hosted in EC2 to microservices, developed front-end UI for a mobile platform, and designed infrastructure to stream high velocity of customer requests by deploying Kafka nodes on AWS EKS clusters. By automating the foundation through Terraform, TCS built the AWS account structure to host the business applications, Kafka nodes and microservices. TCS automated DevSecOps pipelines built in Jenkins and integrated with Sonar and Nexus tools to ensure the security of the new microservices architecture, further remodeling it with Kafka to decouple sender and receiver services via asynchronous messaging for a fast and reliable inter-service messaging facility. Role-based access controls (RBAC) were leveraged to secure Kubernetes API server operations and improved security posture of the AWS environment's Kubernetes clusters. The bank is now able to respond to customer requirements across channels in real time. TCS helped the client adopt microservices-based architecture for accelerated delivery of applications and features. By supporting the creation of dedicated identity and access management roles, TCS also regulated user access into the bank's AWS environment. The client now enjoys: BFSI firm adopts best security practices TCS Cognitive Document Processing on AWS Empowering

Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height

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Transforming Bahrain's expat application

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/aws/case-study/lmra-application-migration-aws-cloud ----- Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy Grow, Innovate, and Transform with TCS and AWS Cloud Highlights In this article Challenge Solution How we did it Benefits Case study Related reading Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. LMRA improved application's response seven-fold and halved operating costs You have these already downloaded We have sent you a copy of the report to your email again.   Authorities must secure data flow and protect citizens' privacy while providing a reliable infrastructure. Bahrain's Labour Market Regulatory Authority (LMRA) is a government body with a corporate identity. Managed by a board of directors chaired by the country's Minister of Labour, LMRA caters to 55% of the population with 8.7 million visitors to

Bahrain annually. It regulates the labor market by strategizing and controlling work permits for expatriate employees and self-employed, in addition to issuing licenses to manpower and recruitment agencies. In a fast-changing world, the impact of emerging technologies on the public sector is inevitable. Many governments are now relying on next-gen services for better access to information and improved efficiency and decision-making processes. The citizens too expect accessible and customized services. To meet these expectations, authorities need to secure the flow of data and protect people's privacy while providing a reliable infrastructure. LMRA uses a fully integrated system to provide world-class and fast services to users, reinforcing the one-stop-shop concept among the government agencies to facilitate employers. It also provides data to officials at airports and seaports for ensuring a well-managed expatriate entry into the country. The existing application, running on a 10-year-old IBM Mainframe, was not able to perform efficiently with growing volumes of data. The system also lacked the agility required to respond to potential business in the new marketplace realities. The operational expenditure and recurring license cost to run this platform was high as it used on-premise servers. Designing a multi-phased cloud journey for scalability, security, and compliance. LMRA decided to respond to new technology opportunities and adhere to the market's growing needs. It reached out to TCS as its trusted transformation partner. TCS proposed a multi-phased cloud migration to enable a better integrated and more efficient system while maintaining a high level of security. TCS conducted a detailed on-premise assessment of the Mainframe system for application migration, security, performance and reliability. They also looked at the validation of the migration strategy and right sizing following multiple proof of concepts and proposed migration to the new AWS platform. Various data and application in IBM Mainframe were migrated and AWS cloud, many native services such as Amazon Elastic Block Store (EBS), Amazon S3, Amazon Elastic File System (Amazon EFS), and Amazon Elastic Compute Cloud (EC2) were commissioned at the target site. Cost-effective storage and archiving solution was leveraged using Amazon S3 Glacier/ Amazon S3 Glacier Deep Archive. Fully automated backup management using custom scripts, AWS Backup Service and Amazon S3 snapshots were put in place. Multiple copies of synchronous and asynchronous data base replication were used to achieve near-zero Recovery Point Objective (RPO) and Recovery Time Objective (RTO). Setting the stage for future transformation. The migration of LMRA from Mainframe to AWS is very critical to the Bahrain government as the success of this project will pave the way for all future migrations. Consequently, it initiated the building of AWS foundation on cloud keeping in mind scalability, security, and compliance. An external application integration was secured through wide-area network. This was later followed by the migration process including re-platforming the mainframe components on AWS platform, and replacing it with AWS components. Multiple security, performance, and reliability tests were conducted during this migration phase. The entire implementation was completed with less than 12 hours of downtime. On a financial scale, the operating expenses decreased by 50%. In numbers, the response time improved seven fold and the agility of the system 95%. Outdated systems were replaced with upgraded system practices creating an engaging user experience. The security measures adapted during and after the migration were compliant with government regulations. This cloud migration paved

the way for future technology refresh. With less infrastructure complexity, the new system has become highly adaptable and will allow optimizing services to meet demands. It will enable the authorities to react quickly and innovate smoothly. At a macro level, cloud computing will help centralize facilities, enhance human capital and utilize resources efficiently. LMRA is now catering to the largest cloud-based database of expatriates in the Middle East. Insurer builds central access management TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

A BFSI firm adopts best security practices

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begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS identifies configuration deviations using serverless functions You have these already downloaded We have sent you a copy of the report to your email again. A leading BFSI firm wanted to build robust security controls with AWS Services. The financial services firm wanted to leverage AWS to meet governance and compliance requirements, and gain real-time visibility into their recently adopted cloud infrastructure. The company's IT team had spent significant time and effort in trying to ensure compliance, but the effort was largely fragmented. There was a need to adopt a secured digital fabric to comply with the Center for Internet Security's corrective configuration measures through serverless functions.   TCS identified changing configurations and compliance drifts. TCS adopted a compliance-as-a-code approach to identify changing configurations and build best security practices. TCS implemented a solution based on AWS Cloud Adoption Security Perspective to protect customer workloads and mitigate vulnerabilities and detective controls to help provide visibility into the AWS operations. The solution helped monitor user activity in cloud with the help of AWS CloudTrails and leveraged Amazon CloudWatch to deliver a near real-time stream of events. While users provision resources on AWS, the solution ensured monitoring and auto-remediation of compliance deviations. TCS also implemented the Amazon Simple Notification Service (SNS) to prohibit any misconfigurations and flag notifications related to retiring a signing key and substituting with a new cryptographic key, inactive user accounts and vulnerable group accounts, among other system misconfigurations.   TCS protects BFSI-related workloads and mitigates vulnerabiiities. The finance company now monitors configuration drifts with real-time Amazon SNS alerts. TCS helped build a robust, breach-proof security posture by providing real-time notifications for configuration drifts and eliminating additional time spent on security operations. The solution has accelerated development efforts and ensured compliance, thereby eliminating compliance fines and ensuring business continuity for the finance company. Life insurer adopts zero-trust framework 01. Consulting and advisory Strategies for holistic cloud transformation… with end-to-end services for cloud operating model, security, operations setup, digital process enablement, and cloud value realization. Strategies for holistic cloud transformation… with end-to-end services for cloud operating model, security, operations setup, digital process enablement, and cloud value realization. Develop strategies for holistic cloud transformation, with end-to-end services for cloud operating models, security, operations set-up, digital process enablement, and cloud value realization. 02. Cloud operations Simplified and efficient hybrid cloud orchestration with a Machine First™ approach… powered by TCS' Cloud Exponence platform. Make the most of SAP application management services and SAP BASIS support with our industry-leading delivery and Simplified and efficient hybrid cloud orchestration with a Machine First™ approach… powered by TCS' Cloud Exponence platform. Make the most of SAP application management services and SAP BASIS support with our industry-leading delivery and Simplify hybrid cloud orchestration with a Machine First™ approach, powered by TCS' Cloud Exponence platform. Make the most of SAP application management services and SAP BASIS support with our industry-

leading delivery and operations management capabilities. 03. Collaboration and CX transformation A unified omnichannel user (agent) experience with AI-based self-service capability... Reimagine your CX with a CX collaboration space powered by TCS RemacX platform. A unified omnichannel user (agent) experience with AI-based self-service capability... Reimagine your CX with a CX collaboration space powered by TCS RemacX platform. Deliver a unified omnichannel user (agent) experience with our AI-based self-service capabilities. Reimagine your customer experience with a CX collaboration space powered by TCS RemacX platform. 04. Enterprise modernization Resilient and future-ready architectures... leveraging cloud-native infrastructure, automation, reusable and ready-to-deploy components including AWS containers, AWS serverless microservices (chassis) platform, and DevSecOps factory. Resilient and future-ready architectures... leveraging cloud-native infrastructure, automation, reusable and ready-to-deploy components including AWS containers, AWS serverless microservices (chassis) platform, and DevSecOps factory. Build a resilient and future-ready architecture, leveraging cloud-native infrastructure, automation, and reusable and ready-to-deploy components, including AWS containers, AWS serverless microservices (chassis) platform, and DevSecOps factory. 05. Edge computing and IoT Collaborative ecosystems and cloud computing at the edge... to create hyper-personalized customer experiences with intelligent products, connected plants, connected services, and product life cycle management. Collaborative ecosystems and cloud computing at the edge... to create hyper-personalized customer experiences with intelligent products, connected plants, connected services, and product life cycle management. Enable collaborative ecosystems and cloud computing at the edge to create hyper-personalized customer experiences with intelligent products, connected plants, connected services, and product life cycle management. 06. Foundation Rapidly define, design and deploy AWS foundational platforms and services... for cost management, continuous improvement, and security using services powered by TCS Cloud Mason Framework and reusable infrastructure as code (IaC) templates. Rapidly define, design and deploy AWS foundational platforms and services... for cost management, continuous improvement, and security using services powered by TCS Cloud Mason Framework and reusable infrastructure as code (IaC) templates. Rapidly define, design, and deploy AWS foundational platforms and services for cost management, continuous improvement, and security using services powered by TCS Cloud Mason Framework and reusable infrastructure as code (IaC) templates. 07. Industry solutions Accelerate business transformation with next-gen products and platforms contextualized for industries... Accelerate business transformation with next-gen products and platforms contextualized for industries... Accelerate business transformation with next-gen products and platforms contextualized for industries. 08. Migration Reimagine enterprise applications, data or infrastructure with automated cloud migration services...leveraging data center discovery and migration factory powered by TCS Cloud Counsel platform, TCS CrystallusTM for S/4HANA, and TCS ConvertCor Reimagine enterprise applications, data or infrastructure with automated cloud migration services...leveraging data center discovery and migration factory powered by TCS Cloud Counsel platform, TCS CrystallusTM for S/4HANA, and TCS ConvertCor Reimagine enterprise applications, data, or infrastructure with automated cloud migration

services, leveraging data center discovery and migration factory powered by TCS Cloud Counsel platform, TCS CrystallusTM for S/4HANA, and TCS ConvertCore. 09. Mainframe modernization Transition seamlessly from legacy applications and systems to microservices-based cloud architectures...by leveraging automation and AI. Transition seamlessly from legacy applications and systems to microservices-based cloud architectures...by leveraging automation and AI. Transition seamlessly from legacy applications and systems to microservices-based cloud architectures by leveraging automation and AI. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Empowering Centrica's customers with energy usage insights

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believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS helps British Gas Business (BGB), a division of Centrica, comply with a government mandate to provide business customers with their energy consumption data. You have these already downloaded We have sent you a copy of the report to your email again. The global energy sector is undergoing a transformative shift due to the urgent need to accelerate the move to net zero. Relying more on renewable energy to reduce carbon footprint and monitoring and managing energy consumption have become essential for enterprises the world over. British Gas Business (BGB), a division of Centrica plc, is a leading energy supplier and services provider in the United Kingdom (UK) and Ireland. BGB and its parent company are committed to meeting the evolving needs of their business customers and helping them accelerate their path to net zero with innovative offerings. Centrica's BGB unit joined forces with TCS and AWS to build energy consumption analytics capabilities using AWS Cloud. When the Department for Energy Security and Net Zero, DESNZ (formerly called BEIS)—a department of the UK government responsible for managing business, industrial strategy, science, research and innovation, and energy and climate change policy—came out with a mandate for energy suppliers and distributors in 2022, BGB had to comply with the mandate. The mandate required energy suppliers to provide business customers with accessible energy use data, including up to a year's historical data from their smart meters. With detailed half-hourly or hourly readings for electricity and gas, the data would give business customers the insights needed to make informed decisions about their energy usage. However, BGB's existing technology and infrastructure could not cope with the massive data influx, making compliance with the government mandate difficult. TCS helped BGB build robust data-handling capabilities to effectively manage its business customers' consumption data and provide them with the energy usage insights they needed. To meet the DESNZ mandate and enhance its data management capabilities, BGB leveraged second generation Smart Metering Equipment Technical Specifications, or SMETS2 meters. While this improved the reliability and accessibility of energy consumption data both for itself and its business customers, managing the sheer volume of data that these devices generated was tough. To empower BGB with robust data-handling capabilities, TCS built an efficient data pipeline, or in other words, a data processing framework using AWS Cloud to work with large volumes of data via parallel processing and provide the required insights to business customers for operational reporting and adherence to industry norms. The solution leveraged AWS Glue to discover, prepare, and integrate all the data available and Amazon S3 for data storage and retrieval. We made the most of our demonstrated competencies in AWS solutions, contextual knowledge of BGB's business, and years of experience working in the energy, resources, and utilities industry to get the best out of the AWS capabilities to solve BGB's challenges. Additionally, we implemented an open lake-house data architecture that allowed retrieval of previous data versions for enhanced operational reporting and for atomicity, consistency, isolation, and durability (ACID)—all of which helped maintain data integrity and reliability. With the highly efficient, cloud-native data processing framework TCS developed, BGB was able to meet business demands, comply with the DESNZ mandate,

and gain business customers' trust. BGB was able to boost regulatory compliance and customer satisfaction by empowering its business customers to make informed decisions based on their energy use. It gained not just a competitive advantage, but also business customers' trust. Key benefits: Modernizing data management is critical for driving innovation and sustainable growth to prepare enterprises for the future. This partnership with TCS has enabled us to leverage modern data architecture on AWS and empower our business customers with near-real-time energy insights, to accelerate energy transition." RAJAT MAHAJAN Data, integration, and analytics services on AWS TCS energy and utilities services on AWS Cloud TCS' Databricks services on AWS Cloud From potential to performance by design Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS Amazon Connect: Powering modernized contact centers

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releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. TCS leverages the Amazon Connect platform to offer a cloud-based, scalable contact center service. Companies using traditional contact center platforms face many challenges. The platform is not only expensive, it requires trained professionals for installation and maintenance. Plus, it takes long to set up and cannot be scaled quickly to meet real-time demand. Moreover, the platform cannot integrate new technologies such as conversational IVR and AI. TCS Amazon Connect provides a self-service, cloud-based, highly scalable contact center service, which allows businesses to deliver better customer service. With no upfront payments, long-term commitments, or infrastructure requirements, companies can pay by the minute. The only additional charge for utilizing this service will be the cost of telephone services. TCS leverages the Amazon Connect platform, and incorporates a custom-built application to achieve a robust and future-proof contact center. It enables customers to leverage a feature-rich contact center that integrates with the existing database and web services applications, and can incorporate AI-powered conversational IVR. TCS' custom-built applications, such as Wallboard, Reporting, and Agent Desktop, empower companies to achieve a perfect blend of components that meets their demands. TCS has a global presence and provides the Contact Center services in all regions of presence, provided the AWS Connect service is available in that region/ country. TCS Amazon Connect service integrates multiple business components in one system. Its key features include: TCS is exploring AWS services such as LEX, Comprehend, Transcribe, and Translate to design a fully functional multi-language analytics solution for the AWS Connect contact center.   With over a decade of experience in designing, deploying and managing customer care solution, TCS has a proven record of delivering industry-leading contact center solutions, with associates who are trained and certified in implementing customized Amazon Connect contact center. TCS' application development and support engineers provide comprehensive tailored solutions to meet businesses' specific requirements. TCS is a certified reseller and strategic go-to partner for AWS in Amazon Connect space. For further queries and interest on TCS Cloud Contact Center offering, kindly contact the TCS team at cloud.contactcenter@tcs.com To learn more about AWS Connect, please visit https://aws.amazon.com/ connect/ TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS Data Storage Services on AWS Cloud

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recovery: TCS helps enterprises achieve recovery time objective (RTO) and recovery point objective (RPO) for restoration based on enterprise business needs taking into account location and nature of workloads and data. The recovery strategies effectively replicate the data to the cloud or within the cloud. The solution can predict disruption and notify the business or automatically recover data based on customer needs. Various backup and disaster recovery strategies like backup-restore, pilot light, active-passive or active-active can easily be achieved by maintaining regular snapshots and data replication. Scalability: easy data scalability available on demand. Security and privacy: services such as encryption, logging and user authentication for data access. Redundancy and availability: multiple availability zones with data replication features; all base storage infrastructure is planned with redundancy, ensuring high availability. Reduced costs: a pay-per-use model enables flexible usage for cost efficiency; advisor tools can suggest how to optimize usage. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS Cloud Exponence Powered by AWS System Manager

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countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Providing auto-remediation enhancements and seamless patch management for AWS environments. To run core digital operations on cloud, enterprises require a platform that can manage applications across AWS environments. TCS Cloud Exponence is a centralized multi-tenant platform that enables cloud consumption across geographies, hosted on variety of cloud providers in a shared services model for enterprises. One of the set of tools used in this platform is AWS System Manager, which provides a unified console to manage patch management on multiple operating systems. TCS Cloud Exponence helps resolve day-to-day operational issues. Cloud Exponence leverages AWS Systems Manager for automated patch management. The AWS Systems Manager provides APIs for seamless integration with ITSM. It has multiple services built in that enable end-to end seamless integration for patch deployment and cloud-based incident handling. These include: AWS Systems Manager Patch Manager AWS Systems Manager Maintenance Windows Windows Server Update Services (WSUS) Red Hat Satellite server Integration with an enterprise's IT service management (ITSM) for change approvals Integration with an enterprise's vulnerability management systems Cloud incident handling automation TCS Cloud Exponence helps resolve day-to-day operational issues using AWS OpsCenter component in AWS Systems Manager. It provides a centralized management service to view, investigate and resolve operational work items related to AWS resources. This helps aggregate and standardize operations across services, while providing contextual investigation data about each component. TCS Cloud Exponence delivers the following benefits to enterprises. Automate operational tasks and easily deploy centralized patch management for hybrid environments. Implement security and compliance by scanning instances for patch, configuration and custom policies. Gain controlled access using defined AWS identity and access management (IAM) roles. Access a highly scalable and cost-efficient solution that is consumed as a service. Ensure automated events generation for any operational issues in enterprise ITSM. Consume customized automation documents to auto-resolve for any common issues. Detect and remediate issues faster. Know more about TCS hybrid cloud patch management at scale using AWS Systems Manager here. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height
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TCS' AWS Glue Services

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engine, Data Catalog, helps add data descriptions for classification, allowing analysts to access, search, and discover cataloged metadata with business intelligence tools. Automation: With TCS' AWS Glue Services, much of the effort spent on building and running ETL jobs gets automated. AWS Glue crawls data sources, identifies different data formats, and even suggests data transformations, or mapping and converting data from one format to another. Not just that—it automatically generates the code required for executing data transformations in the loading process. Cost-effective: AWS Glue allows higher ROI as users are required to pay only for the consumed resources. For an ETL job that may require more power but overall consumes few resources, companies would not be required to pay for peak-time resources.   TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

TCS' Amazon Redshift Services

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IoT-led enterprise transformation enabled by TCS and AWS

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compliance, as well as other features that continuously enhance the productivity of the workforce. TCS Industrial Energy Management: Provides a process and asset-level real-time view of energy sources (water, industrial gas, electricity and steam), enabled through IoT and analytics, for industries like metal, chemical, CPG and auto. It performs ML and AI-based analysis on various parameters to drive energy efficiencies, leading to a 4 to 6 percent reduction in energy spend. AWS has recognized TCS as its premier consulting partner and also as its inaugural industrial software consulting partner. TCS is also a launch partner for AWS IoT Thingsgraph, IOT Events, IOT Sitewise, IMC, and Timestream. Write to us at tcs.iot@tcs.com to collaborate with TCS and AWS in your transformation journey. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Secure and Compliant Enterprise Innovation with AWS

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begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Migrate and modernize on-premise legacy platforms You have these already downloaded We have sent you a copy of the report to your email again. With public cloud security perimeters becoming boundaryless and the accelerated pace of innovation, cyber threats are rapidly increasing. Cybercrimes pose a major threat to cloud environments which are treasure troves of sensitive information. The sophistication level required to break into a cloud environment is constantly dropping owing to modern cyberattack techniques and networking among threat attackers. Common cloud misconfigurations, remote exploitation of cloud applications, elevated permissions for cloud accounts and users, inadequate logging which leads to insufficient visibility into the cloud environment are the most common loopholes exploited by threat actors to exfiltrate data from cloud environments. As enterprises are adding a variety of cloud applications with unique and different capabilities having their own set of security requirements, it becomes challenging for them to innovate and stay secure at the same time. TCS Rapid Security Assessment provides enterprises a view of their security maturity across data, applications, infrastructure, networking, identity and access management, incident response and regulatory compliance. It provides insights into security control misconfigurations and deviations from recommended security best practices, identifies opportunities for cloud security automation and presents a security roadmap listing down the measures and techniques that could be implemented to uplift the security posture of their AWS environment. TCS Security Foundation Designer provides enterprises with reusable solution architecture patterns aligned to security best practices. These patterns come with design artifacts and are readily deployable into enterprises' IT environment, helping them to rapidly build a secure cloud foundation. TCS DevSecOps Factory is a collection of ready-made AWS code pipelines already integrated with the tools and capabilities required to implement secured CI/CD for enterprises. It has pipelines to detect sensitive information, validate infrastructure as code (IaC) templates, scan container images and AWS Lambda functions for vulnerabilities. TCS has also built compliance solutions that enable enterprises to achieve and maintain continuous and automated regulatory compliance. With TCS enterprises can: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height

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TCS' DevOps Services for AWS Cloud

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organizations adopt an agile approach to building cloud-first applications with Amazon SageMaker Pipelines for Machine Learning Projects. A focused approach to DevOps strategy is more relevant in the post-pandemic scenario as enterprises look to build resilience, agility and adaptability through processes such as infrastructure as a code (IaaC) and lower cost to quality through a shift-left approach. A robust DevOps framework with the right processes and tools can help achieve efficiencies at each stage of the product life cycle. TCS has curated DevOps offerings for multi-cloud and hybrid workloads on AWS Cloud. These offerings can be categorized as follows: Assessment and consulting: Assess current software development life cycle (SDLC) tools and processes, perform baselining and gap analysis to design a DevOps implementation roadmap. Enterprise DevOps Transformation: Accelerate organizations' journey to target state with tools, accelerators and frameworks spanning across SDLC, organization culture, automation drivers, lean processes, measurement KPIs and collaboration strategies. Enterprise DevOps Implementation and Support: Define DevOps tooling strategy, implementation and process standardization. Infrastructure as a code (IaaC): Meet on-demand infrastructure needs compliant to AWS Well Architected Framework using cloud-agnostic tools such as Terraform, AWS Cloudformation, and AWS CDK. TCS DevDataOps: Nurture data platforms to support next-gen business workloads, such as IoT, blockchain, analytics, and ML on AWS; and support round-the-clock monitoring, enhancements and administration of data ecosystems on AWS Cloud. TCS DevSecOps Factory: Automate cloud security with CICD pipelines that analyze application code and IaaC code templates for vulnerabilities and compliance mismatches. Breaks silos, leading to better collaboration, improved speed and quality of deployment Empowers organizations to launch new applications and services frequently Ensures each change is functional and safe with CI/CD practices, while enabling scale with IaaC Drives agile operations without sacrificing stability Promotes end-to-end responsibility of generating value for the stakeholders TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Improve resilience with TCS Financial Services and AWS Cloud

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through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. To emerge stronger in the post-COVID world, banking, financial services and insurance (BFSI) firms are looking to build a response
strategy for resilience, adaptability and growth. TCS has been collaborating with leading cloud service providers such as AWS to create customized BFSI cloud services that help speed up digitization and help them adapt to the changing business needs. We have created a BFSI value chain, using next generation technologies such as blockchain, IoT and edge, to provide cloud transformation accelerators.   To emerge stronger and lead in the post-COVID world, banking, financial services and insurance (BFSI) firms are looking to build a response strategy to ensure resilience, adaptability and growth. With a commitment to innovate and transform, TCS enables BFSI service providers gain agility to compete in a result-oriented and customer-driven, digital world. TCS has been collaborating with leading cloud service providers, such as AWS, to create customized BFSI cloud services that help: Speed up digitization and adapt to the changing business needs Evolve into purpose-driven enterprise and achieve sustainable growth BFSI service providers harness the power of cloud to deliver omnichannel banking experience along with secure banking services. For greater operational excellence, they are looking at smart contracts and settlements. Enabling these are cloud priorities such as open banking, synergetic regulatory adoption and intelligent SaaS platforms. To leverage these, BFSI players need to modernize by moving away from a mainframe core to public cloud like AWS. AWS Native Services provide BFSI cloud services that enable enterprises to scale and be agile to changing times.   TCS has created a BFSI value chain, using next generation technologies such as blockchain, IoT and edge, to provide cloud transformation accelerators. The best practices that guide this suite of banking cloud solutions include: Focus on business value to customize the cloud migration and modernization roadmap

instead of adopting a lift-shift approach. Leverage APIs to extend the service fabric on cloud to a greater number of partners and collaborators. Create a self-driving paradigm on cloud using AI/ML solutions. Ensure greater business resilience using low latency, on-premise clouds such as AWS Outposts for customer-facing mission critical needs. A plug-and-play, pay-as-you-go, one-stop SaaS platform, TCS BaNCS Cloud has a future-ready digital architecture that offers a range of functionalities, business agility and operational efficiency. TCS BaNCS Cloud offers the rich functionality of TCS BaNCS business solutions across banking, capital market and insurance on SaaS and on-cloud platform using cloud nativity features and already used by 220+ customer across globe. TCS and AWS have joined forces to help BFSI clients build a responsive strategy to ensure resilience, adaptability and purpose-led growth. TCS BaNCS Cloud is also available on AWS. Leading banks and insurance companies such as Bajaj Allianz and Bahrain Development Bank have adopted TCS BaNCS on AWS.   TCS products and accelerators: Powered by proprietary solutions for cloud modernization including Cloud Counsel, TCS iCMC, Cloud Mason, Cloud Migration Factory, Cloud Exponence, DATOM™, DAEZMO™, TCS QET Platform, TCS MasterCraft™ Transform Plus. Mainframe modernization: Helps reduce mainframe dependency and ascend to AWS Cloud using pattern-based architectures and accelerators such as TCS MasterCraft™. Cloud value architecture for BFSI: Combining deep contextual knowledge with AWS' cutting-edge native services for creation of Borderless BFSI Enterprises on Cloud. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS' data streaming services with Amazon MSK

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extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Stream volumes of data across applications and devices securely and seamlessly using TCS' data streaming services with Amazon MSK. You have these already downloaded We have sent you a copy of the report to your email again. Rising need to securely capture and stream data Data streaming allows businesses to collect and analyze real-time data that provides valuable insights to take informed decisions. However, it comes with many challenges such as high data volumes, complex infrastructure and architecture, data integrity issues, and possible failure and delay in streaming. Cloud can help. With the right cloud service and tools, organizations can effortlessly monitor, process, and analyze real-time data. Moreover, as the value of data diminishes with time, it is critical to derive data-based insights faster. Take, for instance, a fraud detection scenario for credit card transactions where early identification of the fraud can mitigate associated risks. Hence, organizations need data streaming services that produce quick results at low latency for high volumes of data. Enabling reliable and seamless streaming of real-time data TCS offers data streaming services with Amazon Managed Streaming for Apache Kafka (Amazon MSK), a fully managed service that makes it easy to build and run applications that use Apache Kafka, an open-source streaming platform. Our services help organizations strengthen the reliability of their data streaming, integrate with native AWS services, and easily deploy and evaluate different streaming solutions. We provide data streaming services for real-time analytics, event streaming, stream processing, and log aggregation using Amazon MSK. Our services are tailored for specific industries. For instance, retail companies can use our services to collect data from point-of-sales to a data warehouse. In case of healthcare companies, we help aggregate logs from medical devices to derive meaningful insights into patients' health using streaming solutions. By removing the complexity from data streaming with Amazon MSK, we enable organizations to securely and seamlessly stream data across applications and devices. With a fully managed, highly available Apache Kafka service, Amazon MSK makes it easy to ingest and process streaming data regardless of the scale of data without the need to manage capacity or infrastructure. It helps organizations address various challenges while running Apache Kafka such as difficulty with set up, configuration, scalability, and maintenance. It is fully compatible with Apache Kafka toolsets like Kafka Connect, which offers rolling version upgrades to Apache Kafka. Security is embedded in our streaming services as Amazon MSK is

integrated with AWS Identity and Access Management, Apache Kafka access control list, and AWS security group. These security features mean organizations gain from encryption of data at rest and transit, and access control management. Streaming data across applications and devices seamlessly and effectively TCS' data streaming services with Amazon MSK help organizations: Unlock new use cases and data patterns for driving value. Easily provision, configure, and scale Kafka clusters using Amazon MSK's fully managed Apache Kafka service. Migrate existing Apache Kafka implementations to Amazon MSK.   Extend support for evolving business and application requirements. Partner with TCS to make the most of our key differentiators. TCS' decade-long partnership with AWS in delivering products and solutions in the cloud. TCS' products, solutions, solution accelerators, and best practices for streaming data solutions on AWS. Our best practices, data ingestion patterns, standards, templates and frameworks for easy migrations and implementations. TCS' experience in executing proof of concept (PoC) and optimizing total cost of ownership (TCO) with Amazon MSK. TCS' Amazon Kinesis Service for Real-time Data Processing and Analysis The Big Opportunity for Communications Service Providers in a Streaming World Minimizing Disruption in Modernizing Legacy Systems Is the Media Industry Prepared for 5G in Video Streaming? Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

TCS' AWS Web Application Firewall services

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as AWS WAF seamlessly integrates with AWS Lambda and Amazon CloudFront. Adapt to evolving threats for proactive defense with AWS WAF's rule-based system. Make the best use of our key differentiators to drive your growth with security. Our strategic partnership with AWS allows enterprises to harness the full capabilities of AWS WAF. TCS' comprehensive strategy and transformation approach ensures smooth transitions from traditional legacy systems. We offer tailored blueprints to ensure AWS WAF integrates seamlessly with your industry-specific needs. This includes web security as a service (WSaaS) implementation, real-time threat intelligence integration, and advanced customization of rule sets and strategies. Our rich pool of talent experienced in AWS WAF implementations across industries. TCS Becomes AWS Security Competency Partner Secure and Compliant Enterprise Innovation with AWS Protecting data from internal threats using AI Secure by Design to Tap the Open Banking Opportunity Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

TCS' compliance and governance services on AWS Cloud

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collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. We help enterprises achieve configuration compliance of resources on cloud using AWS Config. You have these already downloaded We have sent you a copy of the report to your email again.   Ensuring configuration compliance in the modern cloud landscape Appropriate configuration of devices and other resources on cloud is crucial for running secure cloud operations. It is a must for checking cyber vulnerabilities, and for compliance with security, regulatory, industry, and internal IT mandates. Ensuring configuration compliance becomes even more important with the fast-paced evolution of the cloud ecosystem. However, organizations often lack comprehensive visibility into their cloud infrastructure. This makes it difficult for them to monitor their resources, assess, and strengthen their security posture to protect themselves from potential cyberattacks. Leveraging AWS Config—a service that assesses, audits, and tracks resource configurations on AWS Cloud—TCS' compliance adherence framework offers a holistic, adaptable, and streamlined approach for compliance management. By enabling the right configuration of cloud resources, we help ensure compliance with regulatory and industry standards, avoid legal and financial repercussions, and build customer trust. Augmenting AWS Config with TCS' automation capabilities Through our compliance and governance services on AWS Cloud, we empower organizations with the capability to continually scan their cloud environment for adherence with their business and industry controls. While AWS Config offers a detailed view of AWS resource configurations, its power is truly harnessed when complemented by automation. That's where TCS and TCS' leading automation capabilities come in. We complement AWS Config with the following: With TCS' compliance and governance services on AWS Cloud, businesses can face resource compliance configuration challenges head-on. Helping organizations run more secure and more efficient businesses in the cloud Unlocking AWS Config's full potential with TCS   TCS Becomes AWS Security Competency Partner Combating Cyber Security Threats and Securing the Environment Data loss prevention framework in AWS to secure sensitive data Secure by Design to Tap the Open Banking Opportunity Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

TCS Cloud Governance with AWS Control Tower

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connect. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Govern your business in the cloud seamlessly with our service leveraging AWS Control Tower. You have these already downloaded We have sent you a copy of the report to your email again. Managed controls can help enterprises overcome cloud security and compliance challenges. Access and compliance management, security, and operational efficiency can be a huge challenge for organizations when moving to the cloud or scaling up infrastructure in the cloud. This is where automated checks and enforcement and managed controls come in. These can help enterprises meet their business, security, and compliance requirements and accelerate their cloud journey. Leveraging TCS' extensive expertise in cloud migration and digital transformation along with AWS Control Tower, we help enforce best practices, standards, and regulatory requirements with preconfigured controls so companies can focus on their business growth and driving value from cloud. We empower enterprises to set up and govern their AWS infrastructure seamlessly. TCS Cloud Governance with AWS Control Tower empowers enterprises to seamlessly set up and manage their AWS infrastructure. Covering crucial aspects like account management, security enforcement, and infrastructure setup, our service helps organizations establish a robust cloud foundation with the flexibility to adapt to evolving business needs. We facilitate centralized management of AWS accounts, ensuring greater visibility, enhanced security, and operational efficiency. With built-in automation for provisioning compliant accounts and preconfigured, reusable account templates, we help enterprises scale up their cloud operations faster. Our services include the following: With our

service, enterprises can gain better control of their business in the cloud. They can: Our strong partnerships, contextual knowledge, and deep domain experience make enterprises' cloud journey seamless. Our key differentiators: Why cloud storage needs to be tiered, flexible, and elastic Five-point strategy for efficient cloud operations TCS' compliance and governance services on AWS Cloud TCS Becomes AWS Security Competency Partner Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS' capabilities for AWS Service Catalog

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software and IT services is simple when only a few resources are involved and the user base is small. However, it becomes complicated with multiple resources, a large user base, and applications that need to be scaled up. For application scale-up, development teams will require the infrastructure as code created to regenerate or reconfigure the exact replica of an application in use. However, managing the infrastructure as code for many applications is not an easy task. With TCS' capabilities for AWS Service Catalog, enterprises can quickly set up and deploy IT resources and services needed to accelerate their cloud journey and achieve desired business outcomes. Find value faster with readily deployable templates of approved cloud resources. TCS' capabilities for AWS Service Catalog empower organizations with centralized management of deployed services—whether it's databases or custom applications on AWS Cloud. The offering allows administrators to catalog different AWS services into a portfolio of approved applications that users with the required permissions can access. The offering also provides a single-pane-of-glass view of a bouquet of services that development teams can choose from. They can install their chosen applications and required software versions without an administrator. This means users can easily deploy the services they need—approved services that meet the standards and guidance set by their organizations. When integrated with DevOps processes, TCS' capabilities for AWS Service Catalog serve as a repository of ready-to-use services. It also ensures that a baseline version of an application is readily available for deployment or scaling. In other words, it can help enterprises set up, manage, and govern their curated infrastructure as code templates. With standardized components and templates, enterprises can speed up the development cycle of a software or application deployment and accelerate time to market. Using our service, enterprises can gain better control of their cloud resources and derive greater business value. Key benefits: A partnership with us comes with many advantages. TCS' key differentiators include: TCS' compliance and governance services on AWS Cloud Five-point strategy for efficient cloud operations Why cloud storage needs to be tiered, flexible, and elastic Star Alliance makes travel experience better Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Accelerating migration to AWS cloud

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Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 1 MINS READ Karthikeyan Murugesan Data and Enterprise Architect, AWS business unit You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are looking to process data in real-time with advanced analytics to support agile decision making. Data access controls, security and data loss management are some vital parameters ensuring data integrity on cloud. Enterprises are moving towards a machine learning-driven data paradigm. Enterprises can choose bespoke lift-and-shift, move-tomanaged, or migrate-and-modernize paths to AWS cloud. Enterprises must make a planned and strategic shift of data to cloud. Enterprises can choose a suitable data platform on AWS that supports data types like relational data, key-value driven, document, in-memory, graph, time-series and ledgers. The benefits include: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height ======================

Accelerating data warehouse modernization on AWS

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deployed on a cloud platform by 2022, and only 5% will be considered for repatriation to on-premises. Customers across industries are now looking to enhance business use cases with better data insights by leveraging AI to accelerate data operations for accelerated business decision making. Enterprises need to adopt cloud-based data platforms to meet the new world needs of cognitive analytics and insights, data monetization, real-time processing, next-gen visualization, self-service, guided analytics and enterprise data security. Moving data operations to cloud offers enterprises the opportunity to combine native AI and data services to optimize for customer-centricity and create a Machine FirstTM data architecture on cloud. Enterprises that treat data as a strategic asset can take full advantage of the promise of AI and machine learning. In order to organize and analyze data in a cost-effective manner, enterprises must first migrate legacy, on-premises data warehouses to cloud such as AWS cloud, leveraging AI and machine-learning capabilities. There are four aspects that we use to realize the AI-ML advantage. Automation is key: TCS takes a Machine First approach to build data lakes rapidly to ensure return on investment. Right automation initiatives ensure data is holistic, accurate and as near real-time as possible. The right data architecture for data lakes encourages democratization of data to be used across a partner ecosystem. In this approach, automation comes first at all stages of the data modernization journey. Archival of data lakes: TCS helps enterprises leverage AWS platform to archive data lake provisioning, and AWS RedShift to migrate enterprise data warehouses and jump start the database migration process. Build cloud-compatible databases: TCS data estate solution accelerates provisioning and processing of complex incoming data. Database refactoring changes the table structure of database schema to improve the consistency and usage of the value stored in the database. This approach is to make database compatible with the latest cloud platforms, ensuring scalability and flexibility without changing semantics. TCS solutions bring a Machine First approach to data ingestion and archival, covering data transformation or processing, semantic analytic layer, data migration and data validation. Phased migration: TCS takes a phased migration approach that leads to efficient, optimized and cost-effective solution. In AWS environments, Amazon SageMaker can be used to build, train, and deploy machine learning models that identify data that is to be migrated. AWS Glue is used to create a data catalog for the migrated data. Finally, Amazon Athena and Amazon QuickSight are used for business analytics and visualization. Enterprises can build a data analysis layer on top of an enterprise data warehouse (EDW) such as AWS Redshift to draw real-time business insights. AWS provides high flexibility in deployment options and target architectures for database workloads. Amazon Redshift ML helps embed predictions like fraud detection, risk indexing, and customer churn directly in queries and reports. Engineers can make use of SQL function to apply ML models to your data in queries, reports and dashboards. A new generation of business intelligence and machine learning services built on AWS along with AI-ML enables industry-best data performance. Out-of-the-box TCS accelerators have enabled a quick start for new apps in customer environments by providing ready-to-use engines that are pre-trained with relevant schemas. These, in turn, will help AI-related data implementations ensuring improved time to market. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights

TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height ======================

Being sensitive about sensitive data

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again. In 2020 alone, more than 155.8 million individuals were adversely affected by data exposures or unintentional leak of sensitive information in the US. Any information that requires to be protected and guarded from unauthorized access is classified as sensitive data. These can include personal information (PII) such as social security number, health data (PHI), financial details like bank account numbers, card holder data (PCI), customer data, trade secrets and patent worthy information. According to the Federal Information Processing Standards, the sensitivity of data can be measured by its confidentiality or privacy, integrity or accuracy, and availability for use at any point of time. Protection of such sensitive data needs to be considered through its life cycle of discovery, monitoring, masking and de-identification. The COVID-19 pandemic has triggered some disruptive trends such as borderless workspaces, clinical trials, telemedicine, supply chain globalization, return to work, need for real-time access to data and overall accelerated digital transformation. These are driving the generation of massive structured and unstructured data including logs that require discovery and efficient management to derive useful insights. Other trends such as mergers and acquisitions and product launches also contribute a 16.1% CAGR of the data discovery market, which is likely to grow to $12.4 billion by 2026. Common challenges in this process include disparate sources of data, different kinds of structured and unstructured data, lack of data democratization and organizational silos, quality of data, absence of catalogs, and large amount of relevant data existing outside the organization in the larger ecosystem. Data management in the age of big data, data lakes and self-service is challenging. Data catalogs help in organizing the sensitive data from various sources. They provide context to the data with reference to source, structure, quality, lineage and usage by linking sensitive data with their meta data. Cataloging also helps in data classification and understanding the specific fields with sensitive data that need to be masked or encrypted. While a number of paid or open source data catalog tools are available, the lack of expertise in deciding the right one for your business, lack of knowledge of best practices while deploying a data catalog, scalability of the tool, requirement for any additional plug-ins, license terms and lock-in period can become hurdles. Not to mention the need for security measures such as identity access management policies to govern access for sensitive data. Monitoring of sensitive data is important to understand it and derive insights. Once existing data across various sources is discovered and cataloged, it is essential to monitor sensitive data from new and incoming data to ensure that their integration with the existing data and governance such as masking and encryption are seamless. Exfiltration by stealth attackers also call for close monitoring of sensitive data by enterprises. Expanding borderless work and ecosystem perimeters challenge sensitive data security and call for stringent monitoring. Sensitive data needs to be de-identified even before it enters the data lake for you to to derive insights or new business opportunities. If an enterprise uses sensitive data without de-identification, it can be penalized for non-compliance. An architecture like de-identified data lake by design can ensure that enterprises remove sensitive information from data even before it enters their data lakes. This also enables data sets to be available for sharing and reusing in a selective and controlled manner. AI-driven and automated tools can help protect large volumes of data through these four stages of its life cycle. Automate

discovery of sensitive data: Techniques such as machine learning and pattern matching support data discovery tools to prepare detailed reports of sensitive data using built-in criteria. Automated sensitive data discovery, logging and reporting in AWS storage buckets is implemented with the help of Amazon Macie. Simplify classification and management of data: A data catalog is a key component for data governance, data quality and analytics. Data catalog using AWS Glue Data Catalog contains references to data which acts as an index to the location, schema, and runtime metrics of that data and thus simplifies sensitive data classification and management. Monitor data logs and events: Enterprises must define identity and access management (IAM) for user accounts on cloud. The permission policies for these roles allows discovery tools to monitor resource access. In AWS environments, Amazon Macie generates and maintains a complete inventory of your Amazon Simple Storage Service (Amazon S3) buckets. Amazon Macie logs for sensitive data discovery jobs, and how to monitor the events using Amazon CloudWatch. Protect sensitive data: AWS has designed a de-identified data lake (DIDL), an architectural approach that helps solve the data privacy problem by de-identifying and protecting sensitive information before it even enters the data lake. A DIDL on AWS helps discover, identify, catalog, monitor and protect your data. Amazon Comprehend Medical and Amazon Rekognition are two native services used in life sciences industry to de-identify medical images. In order to protect sensitive data, enterprises need to leverage automated tools to discover data, implement catalogs to classify and manage data, define IAM to monitor data and adopt de-identified data lake to protect data. Learn more on how to manage and derive meaningful insights from data on AWS cloud. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

Secure by Design to Tap the Open Banking Opportunity

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vulnerability checks, securing private end points, encrypting data, activating access control to resources, and monitoring for security violations. In AWS environments, there are a host of native capabilities - such as AWS Web Application Firewall (WAF) bot control - to gain visibility into transport layer security (TLS), and detect source IP address of a malicious bot. Data encryption of the API request and response messages secure API end points, which can be done using applications such as AWS Certificate Manager. Machine learning can be used to process data exchanged through APIs. Securing APIs does not refer to only adding security controls, but also extends to anomaly detection abilities. Machine learning algorithms can be used to identify and flag anomalous behavior and malicious data trends. AWS Config is a service that is used to track changes to API configurations. The entire banking ecosystem runs on trust. Consumers should be convinced that their open banking app is secure. TCS, in partnership with AWS, has enabled financial institutions to embrace open banking by building secure APIs that bridge services and customer experience. TCS AWSBU Security Foundation Designer Solution offers security design patterns leveraging native AWS capabilities to create APIs for development teams so that a centralized point of control to enforce security is in place. TCS has built open banking platforms for its clients offering highly secured APIs leveraging AWS services. A Norwegian bank decided to offer a simple person-to-person (P2P) payment solution over a mobile platform, which required a complete modernization of its monolithic architecture to microservices. TCS partnered with the bank to transform from a traditional bank to an open API ecosystem by building a cloud foundation with the flexibility and scalability needed to build the APIs. The payment platform took less than one-tenth of the time taken to capture equivalent customer base as their traditional bank and saw 25% of the country's adoption within six months of launch. Microsoft workloads on AWS: Improve Productivity and Drive Innovation TCS Answers the Big Questions on Cloud Technology Moving reference data to cloud in capital markets to eliminate issues Building Connected Vehicles of the Future with AWS Cloud Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

Harnessing the cloud for property and casualty insurance underwriting

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page Underwriting is key Three key aspects of underwriting Harnessing cloud solutions to enhance P&C underwriting Analytics About the author Related reading Stay in the know TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Balu Subramoniam Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Balu Subramoniam Consulting Partner - Business Solutions, AWS Business Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. The economic impact of the COVID-19 pandemic is visible in every sector, and insurance is no different. As economic activity nosedived, property and casualty (P&C) insurance too decelerated. To be resilient and chart a quick path to rebound, ramping up digital transformation initiatives is key. However, it has not been easy for enterprises to leverage digital assets to overcome the COVID-19 crisis. For P&C insurers, underwriting was one of the critical business functions impacted in 2020. As it influences both profitability and competitiveness, insurers need to re-focus key functions such as underwriting data, risk assessment and decision-making with cloud-managed services offered by cloud service providers such as AWS. Leading insurers are looking to leverage cloud-native services and artificial intelligence (AI) tools to design an IT strategy and work culture for a future-ready insurance paradigm. They must quickly build customer-centric integrated insurance ecosystems to create a differentiated experience. Customer-centricity often involves using data from various sources and calibrating faster insurance decisions via a rich analytics engine. Effectively managing the key aspects of P&C underwriting can offer insurers superior outcomes and benefit their end customers. Underwriting data: Timely and accurate data is fundamental for effective underwriting. P&C insurers face

challenges in aggregating data across sources in different formats. Existing P&C systems can't process unstructured data, which then has to be done manually. Plus, integrating traditional rule-based underwriting systems poses a complex challenge. Curated data sources provide valuable insights to enhance underwriting outcomes, and deriving insights from unstructured data is becoming an emerging industry trend. Risk assessment: Post COVID-19, virtual interaction has gained popularity for the convenience and safety it offers. The adoption of internet of things (IoT) is trending as smart IoT devices (sensors, cameras, security systems, etc.) give customers more control of their home or vehicle, generate timely insights and offer usage-based incentives. IoT devices enable industries to monitor their equipment and workflows. Digital capabilities can help convert the data gathered for risk management in P&C underwriting. Decision making: Automated underwriting is a leading P&C insurance trend. Manual underwriting is costly, time-consuming, and prone to cognitive bias, and it could result in losing customers to competition in the long run. However, for underwriting complex or high-value P&C risks, human oversight is required to ensure accuracy. Developing customized workflows for different combinations of human and machine interventions is a challenge that requires significant IT development effort or costly third-party solutions. Underwriting models can be continuously enhanced using insights from unstructured data. Cloud service providers(CSPs) provide futuristic platform capabilities which can enable P&C insurers overcome legacy challenges and capitalize on emerging industry opportunities, with better cost efficiency, flexibility, scalability and low upfront investment. AI and machine learning (ML): Leading CSPs offer fully managed AI-ML services to build, train and deploy ML models that can be applied to various insurance business functions. ML technologies can help with seamless data aggregation, ensuring data quality and integrity. From complex unstructured data, ML-based natural language processing (NLP) service can identify contextual insights and relationships (keywords, places, specific phrases, and so on). Trained with P&C insurer's contextual data, underwriting ML models can perform customized risk profiling. ML-based audio and video processing services can be leveraged for offering virtual contactless risk assessments to customers. Trained ML models can identify underwriting risks (such as a wood-burning fireplace, unsafe windows, and so on) specific to P&C insurer's requirements. Automated underwriting ML models can be developed to overcome cognitive bias and provide consistently accurate underwriting outcomes in a short time. Where required, human oversight can also be easily added to an ML workflow. Leading CSPs provide services that can help build training datasets to continuously enhance ML models for underwriting new risks. For example, new construction type, roof type, and so on, can be underwritten by training existing models with images of new types of property. Most CSPs offer services that enable data providers and subscribers to consume and benefit from curated data. Once subscribed, P&C insurers can get data to derive insights to underwrite and harness the information and make decisions on renewals and claims. ML-based business intelligence (BI) services provide advanced analytics capabilities, highlight anomalies, build interactive dashboards, and summarize metrics in plain language for underwriters. NLP-based cloud services can help underwriters quickly get answers to business questions asked in simple language. For example, an underwriter may ask, "What is the last five years' claims

experience for a vehicle model?" and get an interactive chart of the insurer's claims experience for that model. IoT: Using cloud and IoT technologies, P&C insurers can securely gather data from IoT devices to develop and train accurate risk assessment models using real-time data. Cloud IoT services help P&C insurers offer parametric insurance, such as flood insurance, where IoT sensors measure flood water levels and help underwrite risk. TCS helps insurance providers leverage these digital capabilities to compete in a result-oriented and customer-driven, digital world with a range of services for insurers on AWS cloud, combined with its business solutions in cloud. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height

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Check cloud readiness with a propensity model

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across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Vivek Kumar Head, Cloud and Digital CoE for Travel, Transport and Hospitality, TCS You have these already downloaded We have sent you a copy of the report to your email again. This is true of the travel, transportation and hospitality industry as well. Players in this sector are well aware of the urgent need to adopt cloud to realize the digital opportunity. However, the challenges in this industry are different from the others. There are companies of various sizes; they need to operate in coordination with other players in the industry; the customer journey involves numerous touchpoints; and customer-centricity is key not just to business success, but even survival. In other words, the business processes in the travel and hospitality industry are markedly different from those in the others. Moving to cloud for players in the industry is not an easy decision. First, they have to assess their cloud readiness. There's a tendency to gauge cloud readiness from an IT-only perspective which can lead to costly misjudgments and impact the business in the longer run. What is needed is a holistic appraisal based on business, data and technology dimensions. It provides a framework to assess the current landscape and clearly identify where the company currently stands vis-à-vis industry benchmarks. By tracking the business process maturity on three key dimensions of business, data and technology, the cloud propensity model provides a much-needed industry view of cloud adoption as well as a critical, comparative assessment to pinpoint deviations from industry standards. This model can save months of effort during the assessment phase, which in turn helps prioritize and sequence the business processes for cloud adoption. Step 1: Assess the enterprise's key business process using comparative analysis with industry-specific cloud business propensity model. Step 2: Define reference architectures and patterns for cloud migration. Step 3: Select accelerators to speed up the cloud adoption journey. The assessment based on the propensity model offer key insights into cloud migration priorities. The business processes are slotted into three buckets. 60-100% propensity: High level of cloud readiness with the business processes having established market solutions. These processes would be first in line for cloud adoption. 45-60% propensity: Mixed levels of readiness, with very few matured solutions available on cloud. These business processes will take a little longer to migrated. Less than 45% propensity: Low business propensity for cloud, mainly due to legacy and mainframe technologies. These business processes will take three to four years to move to cloud, and will initially reside in the organization's data center. It does not align with industry standards, and helps enterprises focus first on correcting misaligned functions, which ensures long-term health and success on the cloud. It provides: An excellent framework to ascertain the industry standards in cloud adoption A comparative study with deviations from industry benchmarks identified Understanding of business, data and technology dimensions of all business processes TCS, along with Amazon Web Services (AWS), has created several

reference architectures and accelerators to help companies close the gaps identified by the propensity model. TCS consultants help travel and hospitality companies differentiate their capabilities on cloud. Through our Digital Value Broker framework, coupled with design thinking-led creative problem solving, we partner with companies as they navigate the challenges of cloud adoption and hybrid IT strategy across the cloud life cycle. Our tools such as business propensity benchmarks, cloud value economics assessment, and cloud value estimator models are tailored for different travel, transportation and hospitality segments. We further extend the technology value chain for the travel industry by harnessing next generation technologies such as blockchain, IoT and edge, workloads on AWS. TCS has worked with a wide gamut of players in the industry, including 35 airline companies and two major airline alliances, seven major logistic providers, 11 railway customers, 10 seaports, five postal organizations, five leading hotel chains and three car rental companies to adopt the next wave of digital technologies The pivotal aspects of running businesses in disruptive conditions. TCS assists enterprises adopt AWS-native services, enabling them to respond quickly to the ever-changing market dynamics through innovation. We believe innovations, born out of unsettling global conditions, will impact and improve the way we travel, live and entertain ourselves in the years ahead. Read more on how Star Alliance is reinventing itself with the power of AWS cloud here. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height ======================

Why cloud storage needs to be tiered, flexible, and elastic

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change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Ashish Vyas Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Ashish Vyas Cloud Infra Strategy and Modernization - AWS Business Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. Enterprises need more storage and more compute power to store and process more data, and faster and quicker networks to meet user expectations of performance. The storage spend is now driven by workloads related to the deployment of new technologies. Gartner predicts that by 2024, 50% of the global unstructured data storage capacity will be deployed as software-defined storage. The storage management, data protection and valuation of data continues to be an important aspect for businesses of all sizes. With the transformation brought about by cloud, many of the underlaying aspects of data storage are increasingly becoming less important and the line between on-premise storage and cloud-based storage has started to blur because the selection of storage is increasingly being made based on business growth requirements and not on where and how the data is stored. This advantage not only eliminates procurement and management efforts involved in on-premise storage infrastructure, but also gives agility, global scale, and anytime-anywhere data access. Storage capacity, security and durability are managed by the cloud storage provider, which also ensures applications' access to data. Applications access cloud storage through traditional storage protocols or directly through an API. Many providers offer additional services designed to collect, manage, secure and analyze data at a massive scale. A thorough assessment of storage tiers is necessary to understand the data life cycle - how the data is created and stored in the primary storage; where it can be accessed more frequently and at a very high speed; when it is moved to the next tier of primary storage where it is accessed less frequently; and finally when it is moved to the secondary storage tier for less frequent usage. A detailed assessment of the storage data life cycle is critical to design the target-state cloud storage and identify any hidden cost and associated complexity. To ensure that critical data is safe, secure, and available when needed, there are several fundamental requirements to

consider. It is important to ensure that natural disasters, human error, or mechanical faults do not result in any data loss. The data needs to be 'redundantly' stored across multiple availability zones and regions. Data availability and security can be achieved by designing the right balance of access control, retrieval times and encryption of the data at rest as well as the data in transit. AWS is one of the industry leading cloud-storage solution providers with a wide range of cloud-storage solution offerings. There are many flavors of AWS cloud storage – block storage (EBS), object storage (S3), archival storage (Glacier) and storage gateway service (AWS Storage Gateway), which provides storage for files, volumes, and virtual tapes using EBS, S3 and Glacier and enables applications to access the storage through standard storage-protocols such as NFS, SMB and iSCSI. To design an optimal and elastic cloud storage solution, it is important to understand each of these storage service and the scenarios for which they would work best. Some of the design considerations are: EBS is a durable block-level storage for use with EC2 instances, and is well suited for use as a primary storage for data that changes relatively frequently, for example, databases, filesystems or applications that require block-level raw storage. S3 is the best-known and most-used storage of AWS. It is well-suited for static web content and for storing data for large-scale analytics or backup/DR purpose. Glacier is a low-cost cloud storage that provides highly secure, durable, and flexible storage. It is well suited for offsite data storage, and for backup and archival. Amazon Storage Gateway seamlessly provides secure integration between on-premise software and cloud-based storage. It is used for corporate file sharing, and also enables on-premise data backup applications on AWS S3. The foundation design addresses holistic aspects which covers compute instances, applications, workloads and services accessing different tiers of storage. Cloud Mason is a TCS offering focused on designing and building an enterprise-grade cloud foundation with secure and reliable environment to run multiple application portfolios. It is an engineered platform for design-and-build services which helps quick onboarding of cloud resources, including cloud storage, for any application needs. It leverages TCS' SAVIOR Framework to design complete range of AWS services including VPC, Landing Zone, AWS Directory Service, Amazon Cloud Directory, Route 53, EBS, AWS Snapshot, AWS S3 Lifecycle Policy, and others. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height

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Transforming CX with smart virtual assistants

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working from home and about 20-80% of the agents would still be working remotely over the next two years. The agent workforce is now distributed and needs a better collaboration tool that is suited for remote work environment. Tools powered by artificial intelligence (AI) can address all these problems and more. AI-enabled conversational agents or chatbots can eliminate the initial wait time and support customer self-service. The bots use natural language for communication, providing an always-on self-service option to customers and reduce the call volume handled by agents. Chatbots are expected to handle 20% of all customer service requests by 2022. Another plus for AI-powered customer experience (CX) is that they are omnichannel. Customers can interact with the agents through digital channels of their choice including social media. About 58% of customers in the US use digital channels and e-mail to contact the call center. Multichannel customer service, however, requires an omnichannel CX collaboration space for agents, with a single unified interface using voice, video, and chat across multiple social media channels like Facebook, WhatsApp, and Slack. This collaboration space must also integrate with CRM systems enabling the agent to create tasks and use AI assistance for having the after-call work (ACW) notes populated automatically without having to leave the collaboration interface. It should also provide facility for agents to initiate video calls with customers for face-to-face contact when required. Context aware: AI-powered call context-aware solutions give agents information about the customer, the relevant product, the interactions with virtual agent and call centers up to the point of call transfer as soon as the voice or chat lands on the agent's panel without having to switch between applications. Real-time search: AI-powered agent self-service function integrates disparate knowledge management sources and provides accurate AI-assisted search results to the agents. The AI-enabled searches can be real-time and show relevant results during the interaction, reducing hold time and idle time during the call. Performance insights: AI and machine learning can also provide performance insights by analyzing the call data. This would provide feedback to the agent through overall sentiment analysis for the call along with sentiment analysis enabling the agent to visualize the point at which the customer had become unhappy. Agents can use this information to improve their call handling skills. Anytime, anywhere: A CX collaboration space that is available on cloud lowers the total cost of ownership and improves operational efficiency. This also means that the agents can log into the call center from any place that has internet connectivity. This allows for a distributed agent workforce and gives companies the freedom to recruit best-in-class talent irrespective of location. Enterprises require a trustworthy partner knowledgeable about solutions such as Amazon Connect and advanced AI services of Amazon. The partner should have deep contextual knowledge to understand their challenges and establish a customized AI-powered CX collaboration space in cloud. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you

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Protecting data from internal threats using AI

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sensitive data is not lost, misused or accessed by unauthorized users. Leakage or threat to a data asset need not necessarily be external to an organization. In fact, employees and contractors are more likely to cause a data breach. Employees could unwittingly download files to a vulnerable USB drive or use their organization IP asset for their own gains. Contract employees, vendors and partners trusted with access to an organization's network pose a similar threat. Organizations spend more to deal with negligent insiders than any other threat profile. Data loss makes organizations vulnerable to data leaks, breaches and industrial espionage leading to regulatory non-compliance as well as long-term damage to reputation and competitive edge. Where business data is identified, data usage is monitored, and security policies are enforced to prevent users from moving sensitive data outside an organization's network. The scope of a DLP solution spans the entire IT environment of an organization including data repositories, laptops, desktops and communication tools such as e-mail and cloud applications. Predictive technologies, using machine learning (ML) algorithms, can enhance DLP solutions and provide a granular control of security breaches within the enterprise. ML models can be used to drive greater accuracy to detect unintended and purported insider breaches and other threats. AI engines get smarter at DLP with every data loss situation they analyze. Before an organization invests in a DLP solution, they need to understand their requirements. Data in an organization is scattered throughout their network, endpoints, servers, file share, databases and so on. Data is classified into high, medium, low or non-sensitive based on predefined business criteria. The classification exercise helps organizations to build security controls based on sensitivity. AI-ML models can be used to classify sensitive data with high accuracy. For example, it can search for numeric strings of nine characters to detect social security number or identify a 13-19 digit sequence of Luhn check formula to identify information marked as sensitive. The data classification exercise not only helps in data protection but is also required to ensure compliance with regulations such as PCI DSS, GDPR, HIPA and others. Amazon Macie leverages machine learning and pattern-matching techniques to bucket data and sends alerts on sensitive data such as PII. The second component of the DLP framework is monitoring across network egress and public-facing devices. It involves installing a DLP agent on all hosts that process data within the production environment. The monitoring process should also scan configuration changes and raise alerts in case of accidental deviations in security policies or unauthorized access to the data. AWS services such as Amazon CloudWatch and AWS CloudTrail help in monitoring, while alerts could be managed using Amazon SNS. Machine learning helps to set up real-time alerts to for timely remediations. The final component of the DLP framework is policy enforcement. Specific rules are created based on the content and context of the data classification. The rule will dictate the type of action to take when a certain type of data is accessed or leaked. For example, if an AWS admin accidentally tries to open a secure bucket to public, the policy enforcement mechanism should prevent the action from being completed. AWS Organizations service helps to define policies on AWS resources. AWS Config can also be leveraged that helps the entire AWS account to be continuously evaluated for compliance. In order to build a robust security governance, organizations should bring in automation to codify these policies for which open-source tools such as Cloud Custodian could be used.

With the proliferation of connected devices leading to a borderless network, organizations need to ensure visibility and granular control on data usage to reduce enterprise attack surface. DLP framework implementation brings complete visibility into the location and usage of data within the AWS environment. It leverages machine learning to: Enterprises should proactively adopt DLP framework as a strategic initiative, and leveraging machine learning in this effort will ensure end-to-end security operation efficiencies and help protect sensitive business data. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

Health checkups for your car, on the cloud

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our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Sameer Bhargava Senior Consultant and Global IoT Lead for TCS' and AWS Business Unit Satheesh Kumar Natarajan IoT Solution Architect, TCS and AWS Business Unit You have these already downloaded We have sent you a copy of the report to your email again. Keeping the connected vehicle industry running with a holistic integrated health management system. With the rise in electric vehicles (EVs) and the evolving connected car ecosystems, it's time to rev up the engines on vehicle health monitoring. What we need today is a holistic integrated vehicle health management (IVM) system—powered by technologies such as IoT, AI-ML, and cloud—continually monitoring and integrating information from all the systems of a vehicle and from the expanding connected ecosystems. The goal is automated detection, diagnosis and prognosis of faults, and maintenance requirements in a vehicle. Just like regular servicing, such health checkups with an IVM platform throughout the vehicle life cycle is critical for today's vehicles fitted with complex networks of telematic control units, electronic control units, and control area network (CAN) bus architecture. The platform must provide both current diagnostics and future prognostics to optimize after-sales maintenance, warranty, and service support. There's no doubt that it's a growing market—the IVM market is projected to touch $28 billion by 2027, accelerating at a compound annual growth rate of 12%. Apart from helping maintain the health of vehicles, another reason for their growing popularity is the potential for IVMs to drive automation in the industry. When it comes to the level of automation in IVMs, on a scale of 0-5, the Society of Automotive Engineers (SAE) views most automotive manufacturers being in the 0-2 range (partial driving automation) based on their current state of diagnostics. A notable exception is Tesla, with their diagnostics rated 4-5 (high to full driving automation). With most vehicles becoming connected, there is an ever-increasing need to support auto manufacturers to achieve 4-5 automation levels.   Driving accuracy and on-time performance of data Another key challenge IVMs can help address is meeting the technological, privacy, and real-time data needs of the connected car market. Take, for instance, the millions of IoT devices in connected vehicles and the billions of messages streaming from these devices every day. IVMs can bring about a streamlined and well-managed approach to handling such massive volumes of data, while maintaining user privacy and minimizing bandwidth cost of data transmission. Also, we know that to drive value from data, accuracy, speed, and accessibility are key. IVM platforms can help maximize value from data by optimizing end-to-end data processing time, ensuring reliability of information, and making sure that information is conveyed in a user-friendly fashion to aid decision making. So, how do we build a holistic IVM solution? An integrated vehicle health management platform must provide both present diagnostics and future prognostics to optimize after-sales maintenance, warranty, and service support. The continually evolving connected vehicle journeys mandate a cloud-based platform to manage the sprawling technology landscape. As the

enabler of various other new technologies, cloud, in combination with a service-oriented microservices architecture, can serve as the digital backbone of IVM systems. Add to it AI and ML, and you get edge and high-performance computing. The solution needs to leverage the latest advancements in cybersecurity to fight new threats and data vulnerability. Gigabit ethernet and other local storage (and compute) capabilities can also be leveraged. To build a holistic IVM solution that will serve as the platform for connected, autonomous, shared, and electric vehicle ecosystem, here are a few key design considerations and features that all stakeholders in the ecosystem—OEMs, service teams, other external third-party suppliers—need to focus on. Base serverless cloud PaaS platform supporting modular and scalable features such as microservices architecture, edge computing, a robust data lake framework, and is event-driven and fault-tolerant. Automotive cyber-security framework for securely onboarding and managing IoT devices at scale and providing multi-level protection from edge to cloud. The framework should cover identification of threats and protection against them; detecting anomalies; response, mitigation and recovery. Software-defined vehicle architecture with functional features such as collection of real-time telemetry data, remote diagnostics with command and control, building digital twins for device health monitoring, fleet management, software and firmware updates over the air, anomaly detection, EV battery management and complete vehicle life cycle management. Advanced services enablement with TinyML, AI at the edge, advanced machine learning models, and data analytics for predictive maintenance. Business reporting, dashboards, digital twin enablement—all with agile automated product delivery and deployment using DevOps and CICD—can be other focus areas. In this context, cloud hyperscalers such as AWS, their related services, and partner ecosystems provide just the right components for a feature packed, powerful IVM platform. Whether it is enabling edge computing and data ingestion with AWS IoT Core, IoT rules, IoT device shadow, AWS IoT Device Management and AWS IoT Greengrass or data streaming with Amazon Kinesis Data Firehose, Amazon Kinesis Data Analytics, building a microservice framework with AWS Lambda, AWS ECS, and AWS Fargate. Not to forget creating a data lake with services such as Amazon S3, Amazon Timestream, Amazon DynamoDB and creating Data Analytics framework with Amazon EMR, Amazon Athena. Cloud is lifting the world toward the future of connected mobility. The advent of software defined vehicles, along with autonomous systems, is driving automotive manufacturing companies to leverage IoT ecosystems and next-generation technologies such as edge computing, cloud data lake, AI, and ML. The way forward for OEM companies and suppliers is to design and develop a resilient, scalable, and secure IVM platform that provides a rich customer experience, ensures traveler's safety, and opens up new revenue opportunities. Learn more about how you can do that with TCS and AWS. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with

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Powering change for utilities with cloud and IoT

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—from rising operating costs and operational inefficiencies to employee safety on remote sites. Not to forget equipment failures from lack of monitoring in hard-to-access operating environments. Or managing customer expectations of smart energy consumption across connected devices at home. Or moving toward net-zero emissions targets. Three Ds—decentralization, decarbonization and digitalization—are the key challenges. Addressing the third challenge of digitalization is critical for solving the first two and for driving technology innovation, introducing new business models, tapping new energy sources, and optimizing operational efficiencies. That's not all. Digitalization will bring enhanced customer engagement, new revenue streams, operational efficiency across utility ecosystems (smart plants, smart grids, smart cities and smart meters), preventive asset maintenance and utilization optimization, and regulatory compliance. But how do we get there? It will require the industry to envision its entire operations from a digital ecosystem perspective. It needs to consider how the remotest data can be captured and analyzed with the objective of providing meaningful insights to users. All this while ensuring controlled access to data and systems, 24*7 monitoring, and governance from a central hub. Which is where a smart energy and utility platform comes in. I will focus on a holistic approach to building a smart energy and utility platform. Specifically, an AWS-powered IoT platform for utilities, which is secure, scalable, and customer-centric. Digitalization of energy will require the industry to envision its entire operations from a digital ecosystem perspective. Cloud, coupled with industrial IoT, edge intelligence, data streaming, digital twin, and AI-ML, provides a springboard for a quick transformation. And AWS' scalability, elastic infrastructure, security, and ability to enable SaaS makes it a robust digital backbone for IoT transformations. Add to it enablers like the ones listed below, and you have the making of an intelligent cloud IoT platform. What goes into the making of such a platform? Here are some of the key things you should focus on: Collecting industrial data through supervisory control and data acquisition (SCADA), and from utility data centers with meter, asset and historian data.

Collecting and analyzing data for local events, edge intelligence with local ML inference, and anomaly detection using solutions like AWS IoT Greengrass, and AWS IoT SiteWise Edge (with AI/ML at Edge). Collecting, processing, and monitoring of industrial equipment data on-premises. AWS IoT SiteWise, AWS IoT Core for LoRaWAN, and AWS IoT Device Management can be helpful here. Developing an effective data lake with secure and scalable storage leveraging solutions such as Data Lake with Amazon S3, Amazon Timestream, and Amazon DynamoDB. Building BI and data reporting capabilities by making the most of solutions such as Amazon SageMaker, Amazon QuickSight, and related services. Cloud IoT platforms have led to an impressive 15–40% improvement in operational efficiencies and cost reductions. They support smart meters, which improve customer engagement, and digital twins that ensure safety. Most importantly, they enable utilities to better manage ever-increasing demand on grids. In the not-too-distant future, the combined power of such platforms and quantum computing can help solve complex problems of smart grids and drive better energy management and consumer experience. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Register for our

email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

Deploying reference data on cloud for capital markets

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issuers, exchange rates, corporate actions and prices—is a critical input for all key business systems of capital markets firms. Every financial transaction involves reference data, and it is used across front, middle and back office systems. Given its key role, capital markets firms rely heavily on sourcing reference data from data providers.However, there are several challenges involved in sourcing the right reference data. First among them is siloed data. In most firms, business units maintain their own separate reference-data databases sourced from external data providers. This results in data duplication and excessive spends on sourcing data from expensive data providers. It also leads to issues such as poor data quality, multiple data sources, data duplication and lack of data governing policies.The resulting inconsistent, inaccurate, and incomplete reference data causes major disruptions. Capital markets firms use straight through processing (STP) to reduce transaction time and to facilitate seamless initiation and settlement of securities without manual intervention. Poor quality reference data causes STP failures that lead to monetary losses and increased operational costs. The impact is not limited to STPs. Poor quality reference data impacts all critical business functions as teams have to spend time to investigate and correct errors. Another challenge is regulatory compliance. Stricter financial regulation requires higher levels of reporting from capital markets firms. They are required to report data on trades and counterparties to reduce systemic risk. Consistent and accurate reference data across the organization is necessary for firms to better assess risk profiles of legal entities and financial instruments they trade with. To overcome the challenges of traditional data sources, enterprises use a host of technologies to assimilate reference data on cloud. Gartner has said that enterprises with a cohesive strategy incorporating data hubs, lakes and warehouses will support 30% more use cases than competitors. Deploying a singlesource of reference data across the organization will eliminate most of the issues related to reference data, leading to significant reduction in operating costs The key to building a successful data paradigm on cloud is taking a holistic approach to map business drivers to a unified data service model that assures end-to-end data lineage, data quality and compliance. This will help enterprises move away from the overheads of on-demand data management to self-service mode.The data lake should be accessible across the organization and delivered through a secure, robust and scalable platform, such as AWS Cloud. Some of the key steps in the process includes:Creating a centralized enterprise-wide data lake for a growing poolof data to be consumed by several downstream applications, a cloud deployment makes for a compelling case as it provides near-infinite compute and storage capacity. AWS DynamoDB and Redshift can be used to build reference data lakes and manage associated metadata.Next comes centralized sourcing of all external and internal data. All data transformations and custom data ingestion rules can be applied at one location, ensuring reference data integrity and data governance across the enterprise. WS Glue/EMR can be used for ingestion and transformation of data from a variety of sources; and AWS Athena and QuickSight can be used for analytics and reporting.To provide access to reference data, APIs need to be developed that all downstream systems will use. AWSLambda and Amazon API Gateway provide the API layer for all downstream systems.Finally, the access to reference data needs to be controlled and monitored. Solutions such as AWS KMS and CloudWatch serve as efficient gatekeepers. Data operations should

enable business-aligned scalability, security and performance for enterprises of all sizes. The following benefits can be realized immediately with the implementation of a cloud-based solution: Over the long term, a cloud-based centralized reference data sourceoffers even more opportunities, such as: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height

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How to run successful data recovery on cloud

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begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Ashish Vyas Cloud Infra Strategy and Modernization - AWS Business Unit, TCS Sumitha Rao Technical Architect - AWS Business Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. With the cloud providers offering flexibility, elasticity and availability, enterprises are not only shifting their primary workloads to the cloud but also the associated disaster-recovery (DR) environments. Having the DR environment on cloud is a good choice for enterprises running on-prem production environments as well, because the cloud enables on-demand consumption of services for DR-related requirements. Disasters are unpredictable and can lead to loss of data. Natural disasters, unexpected breakdowns, node failures, cyber-attacks, server corruptions, eroded configurations, unstable patches and so on make it almost mandatory for enterprises to keep a replica of production environment at an alternate place. DR on cloud involves storing critical data and applications in a secure cloud storage at a secondary site for the systems to fail over in case of a disaster. An always-on disaster recovery (DR) environment is critical for businesses to manage any unforeseen incidents. Besides the DR assessment, planning and implementation exercise, the ability to recover in a predictable manner and return to normal business after any disaster scenario depends on flawless maintenance of the DR setup and diligence in performing DR drills. The cost of downtime is one of the important factors when defining and establishing DR environments. There are various direct and indirect costs to be considered such as revenue loss, damaged reputation, and loss of employee productivity. Planning for a DR environment on cloud has many advantages: Recovery at a lower total cost of ownership (TCO) On-demand services reduce upfront investment for setting up a DR site Reliable and scalable infrastructure Automated solutions and service management Faster time to market According to a Gartner report, hybrid infrastructure increases the complexity of DR, and legacy recovery strategies may fall short of addressing the full extent of operating scenarios. Considering changing enterprise architectures and evolving application designs, DR strategies need to be defined to account for workloads running across on-premise data center, in the cloud, and at the edge. Disaster resiliency requirements must be evaluated at the design stage to ensure that they are achievable. When it comes to DR planning, a one-size-fits-all approach does not always work. However, any business can leverage the benefit of geographic diversity offered by the cloud providers (for example, AWS offers cross-region disaster recovery). For effective DR planning, it is important to identify critical IT systems and associated steps to restart, reconfigure, and recover systems and networks in the DR setup. The DR plan should be based on risk and business impact analysis, which helps determine where to focus resources as per the required recovery time objective (RTO) and recovery point objective (RPO) metrics. Cloud DR planning involves estimation of DR resources with replication solution and covers automation aspects. Cloud DR can be run very efficiently by maintaining a disaster recovery plan with details such as the location of production servers, VM instances, storage, network and security setup on cloud. A detailed assessment is key to good planning and designing of a DR setup. Solutions that help with a detailed view to understand application landscape with all aspects of integrations

and infra mapping, are critical to create an accurate and efficient DR design. There are multiple ways available with leading cloud players such as AWS where cross-region recovery can be configured to address the DR requirement by default. Even if an entire region goes offline, a business can continue to operate with little disruption as a geographically diverse recovery plan would be in place. Advanced features can be leveraged while running DR on the cloud. For example, AWS offers: Two-way replication of S3 storage across regions, which can play an important role during system fail-back as it gives a lot of flexibility from DR perspective by replicating object metadata changes between the buckets. Aurora Global DB, which can be used to have a single database spanning multiple AWS regions. It provides effective RPO (~1 second) and RTO (< 1 minute), which creates a strong foundation for a global business continuity plan. DataSync, which can be used for automated replication (including on premise) and for high-speed recovery. It is very effective for two-way replication of data between NFS file shares, S3 buckets and EFS file systems across the regions. Multi-region replication, which is possible with DynamoDB. This is a No-SQL database and ideal for massively scaled applications with globally dispersed users. DynamoDB global tables provide automatic multi-active replication to AWS regions worldwide, which is useful in running a successful DR on cloud. Taking comprehensive DR measures will help enterprises minimize business downtime, service disruption and, thereby, any loss to reputation. DR helps organizations protect enterprise applications, ensure no data is lost and protect against cyber-attacks. Click here for more details on TCS' AWS Cloud Storage solution. Pave Way for Application Modernization with Automated Documentation ERP on Cloud Platform: Transforming Global Indirect Procurement IFFCO's business process transformation with SAP S/ 4HANA Indirect Procurement Solutions Transform Panasonic Corporation Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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Cloud backup ensures data availability and security

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enough. Instead, the design should incorporate a solution that backs up every device and system as well as every category of data residing or getting created on those devices and systems. Managing the environment for data backup and maintaining accurate copies of backed up data is not a simple task, and it is becoming more challenging with the continuous growth of data. Traditional methods are unable to cope up with the new normal and enterprises are extending their backup target platform to the cloud. To build a cloud-enabled backup solution, it is important to consider the life cycle of organization-specific data, existing investments in data protection solution, recovery objectives, available resources and the data growth aspects. Leading cloud providers such as AWS provide multiple ways to address the challenging needs related to data backup and management. AWS Backup service is one of the leading solutions for centralized and automated data protection. It is a policy-based service that simplifies data protection at scale and helps with the regulatory compliance obligations as well. It deploys data protection policies centrally to configure, manage and govern the backup activity across multiple accounts and all the resources including EC2 instances, EBS Volumes, RDS (including Aurora clusters), DynamoDB tables, AWS Storage Gateway Volumes, EFS file systems and FSx file systems and so on. Accelerators such as TCS Cloud Exponence integrate seamlessly with AWS Rest APIs and enable automated backup operations which are aligned to ITSM processes. The platform integrates with cloud storage as well as the native backup services for automated backup operations and management. There can be multiple scenarios -- for example, primary data corruption or data loss due to human error -- where Cloud Exponence enables automated restoration. In addition, it automates many operational aspects of cloud backup, such as onboarding a new storage as a backup target, tagging appropriate backup policies (schedule, retention, etc.) as well as infrastructure-as-a-code aspects of backup environment deployment and backup policy management. The backup solution should be governed with the following key operational controls: Well-defined access management Retention policies aligned with industry-specific compliance requirements Low-cost storage Encrypting the data at rest Protect from public access Monitoring backup failures with automated alerts Backup data availability during disaster situation Backup interval to be updated in line with RPO requirement Application consistent backup Leverage cloud-native or third-party backup solutions. Reporting backup status through health checks TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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Minimizing disruption in modernizing legacy systems

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infrastructure will require modernizing applications and infrastructure using containers and microservices. Many travel and hospitality companies have retained legacy mainframe systems which support their core-business processes, applications and data. Besides being inflexible and cost intensive, these legacy systems prevent the adoption of agile development with CI-CD methodologies which are necessary to quickly update software and applications to include new features or revise products and services in response to market situations. Despite the urgency of modernization, the overhaul of a complex legacy system is a mammoth task. It needs a carefully calibrated approach that minimizes risk and impact on business continuity, with room for an easy rollback in the event of a failure. Modernizing IT infrastructure and applications can be carried out in three strategic phases - transform, coexist and eliminate. In the transformation phase, applications that can be easily migrated to cloud-native solutions are modernized. Cloud service providers such as AWS offer numerous solutions for seamless migration. Compute capabilities such as AWS Serverless Lambda enable developers to choose their tooling platform and transform each feature of the legacy monolith while maintaining the data synchronization with data replication capabilities using AWS Data Migration Services (DMS). AWS messaging tools make this communication more flexible and reliable. The microservice acts as the publisher and Amazon's Simple Queue Service acts as the subscriber, eventually pushing messages to the monolith. This minimizes business disruptions as it allows applications to coexist in the legacy and cloud-based environment. Incrementally replacing specific functionality requires a façade that intercepts requests to the backend system(s). During migration, the façade routes these requests either to the legacy application or to the new services. This co-existence allows features to be migrated gradually, and consumers can continue using the same interface, unaware that a migration has taken place. The eliminate phase begins when most functionalities have been added to the new system at a desired pace and the legacy system gets 'strangled' and made redundant. Once this process is complete, the legacy system can safely be retired. The nature of travel business is such that the IT systems need to support multiple inter-related events and functions. This is best served by using a microservice-based model that can 'publish' and 'consume' events through multiple components. Let us look at a simple use case of seat reservation for an airline carrier. It has three functions: 1. seat selection 2. payment 3. meal booking. Each functionality is accomplished by microservices implemented in the respective domain using individual datastore. Failure in any functionality requires the system to roll back the entire transaction – and the company might lose out on a related transaction too. If we look at how these functions are choreographed at the IT backend, we find a series of interrelated microservices. While AWS Managed Kafka Service (MSK) could be chosen as the main event broker, each microservice could be implemented in any desired AWS compute platform. If we choose an appropriate cloud design pattern considering all necessary scenarios, we can continue to achieve consistency across multiple data domains despite maintaining separate datastore per service. The workflow of a designated process (saga) could be realized in the form of interrelated events in a defined manner to provide scalability and resilience while maintaining data consistency. The seat reservation process should be able to provide not just a smooth experience to an individual customer, but also be scalable to

manage the holiday season rush. Higher scalability requires microservices to maintain individual datastores. The approach of creating such a choregraphed saga is well proven in the AWS ecosystem using the compute and persistence services chosen from multiple options supported by Amazon's highly resilient backbone infrastructure. While AWS takes the responsibility of managing the platform availability and resilience, designers and developers can concentrate on applying appropriate business logic to consume every event pertinent to address the workflow. Based on the skill sets or preference, microservices could be implemented in one or more languages while running over a single platform. In summary, we addressed two aspects of legacy modernization in the travel sector. One, migrating in a calibrated manner to ensure business continuity; and second, using microservice-based architecture of cloud-native solutions to choregraph a seamless and scalable experience for customers. Leveraging top of the line solutions from cloud service providers such as AWS for both these aspects helps travel companies achieve key benefits including: Lower capital expenditure of migration to cloud infrastructure Faster deployment and scalability of applications Improved protection and security Less hardware to manage means a more sustainable IT infrastructure Add to this the advantages of legacy modernization – eliminating cost of maintaining legacy hardware, inventing business models at speed, building partner ecosystems, and achieving purpose-driven customer centricity. The move to cloud is a flight path to growth and innovation for travel and hospitality companies. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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Why it's time to go for industry cloud

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for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Deepak Gadkar Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Deepak Gadkar Head, AWS, Infrastructure Services (Asia Pacific & Japan) You have these already downloaded We have sent you a copy of the report to your email again. There is an increased focus on industry-specific solutions and how cloud can accommodate the unique regulatory, governance, and legacy technology challenges specific to the business needs. In the latest Big Questions Blog, Deepak Gadkar, Head of AWS Business Unit, Asia Pacific and Japan, explores one of the biggest technology trends — industry clouds. Enterprises over the years have embarked on the adoption of multi-cloud. Today we see most enterprises are already committing to migration and modernisation programs, gradually moving the public cloud-ready applications. It has given respite to shrinking IT budgets and agility to businesses to deploy products faster, securely and with scalability. However, it has not fully addressed the assurance to businesses using relevant industry compliances or solutions that leverage the power of cloud. More so, while delivering a capsulated platform that combines all the above aspects into a vertical focussed package. This is where the need for industry cloud-led business solutions arises. Industry clouds are more than just repackaged sets of services -- they are specifically designed to meet an industry's needs and accommodate industry-specific workflows that general-purpose cloud solutions cannot. For instance, cloud-based business solutions for the financial services and healthcare industries would have provisions to address data security and protection, both of which are top concerns for highly regulated industries. These business solutions identify and build functional requirements of an organisation to deliver operational efficiency and to create new business services for their existing and potential customers. For example, in the complex, siloed, manually driven operations of the aviation sector, cloud-based business solutions can enable connected insights and intelligence for comprehensive operations visibility. It leads to higher productivity and the airline being operationally more responsive while delivering an enhanced

customer experience. Established organisations must continually find ways to differentiate themselves to remain competitive, lead the market and keep at pace, especially from the smaller native digital disruptors backed by what can seem endless new investment monies courtesy of private equity and venture capitalists. Consequently, such organisations carry significantly high levels of technical debt and often experience poor performance due to their legacy systems. Commonly, the siloed front-of-house systems do not integrate well into the back office. Rewriting such techniques takes time and financial investment that is often unavailable. Whilst 'lift and shift' might reduce the total cost of ownership in the short term, it does not address the challenge of ageing technology that is less relevant to the business operation as an industry evolves. Simply put, public cloud vertical solutions have greater potential to create value for enterprises. Industry cloud business solutions have the potential to accelerate and take the risk out of cloud migrations and deliver both economies at scale and cost, as well as enabling an organisation with disruptive technology that is specifically relevant to their market. More recently, TCS partnered with an Australian neo bank to build a payments ecosystem on AWS leveraging its flagship core banking software. The core objective was to create a payments ecosystem to power payment as a service while collaborating with partners and Fintechs to give the business the ability to launch innovative products and deliver a superior customer experience. While addressing these business and technology innovations, our domain expertise in banking and financial services ensured adherence to the Australian Prudential Regulation Authority (APRA) compliance norms for the payment system. These examples demonstrate that the value no longer lies in just having a systems integrator or management consultancy that can lay down references in any given domain and quote how many implementations they have done and how quickly they have done them. It lies in having a partner who can bring to the table the blueprint for your given industry, backed by a relevant knowledge basis and an ongoing commitment to stay relevant as your business evolves through legislation, industry practice or innovation. Industry cloud business solutions have the potential to accelerate and take the risk out of cloud migrations and deliver both economies at scale and cost, as well as enabling an organisation with disruptive technology that is specifically relevant to their market. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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Powering automated, cloud-first workload migrations

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workloads. Achieve seamless and safer migrations with a tool-based assessment, mobilization, and foundation build strategy. With interdependent enterprise application landscapes, moving workloads to the cloud without disrupting business or downtime is an uphill task. A strategic roadmap with the following step-by-step approach to move business-critical workloads to cloud can help you navigate the complexities: Assess your technology landscape to identify the best-fit migration solutions. Plan migration projects by gathering information about on-premise data centers aiding mobilization of workloads with solutions like AWS Application Discovery Service. Build a target landing environment using services such as AWS Landing Zone and AWS Control Tower to set up a well-architected, multi-account environment.   This is where TCS' fully automated factory-based migration of Microsoft workloads to cloud comes in. Harness an automated, cloud-first factory model for a complete environment on AWS. TCS' fully automated factory-based migration provides a well-defined and tested process for migration of Microsoft workloads from data centers to AWS Cloud, or from one cloud to another. The migration to cloud involves several paths such as migration of applications by modernizing existing applications, developing new cloud-native applications, or transforming existing applications to meet AWS' cloud-native architecture. Our assembly-line approach also integrates assurance for seamless migration of Microsoft workloads. From migration to troubleshooting operating system issues, it's all taken care of. You can: Migrate .Net applications with AWS Application Migration Service, AWS Server Migration Service, and VMware Cloud on AWS to relocate hundreds of applications to AWS Cloud swiftly. Automate moving SQL-based data workloads with AWS DataSync between on-premises storage and Amazon S3, Amazon Elastic File System (Amazon EFS), or Amazon FSx. AWS Database Migration Service keeps the source database operational during the migration. Move large data types from data centers with AWS Snow Family, which offers several physical devices and capacity points with built-in computing capabilities. Transfer files directly into or out of Amazon S3 using AWS Transfer Family services. Troubleshoot operating system issues related to target servers on AWS with EC2Rescue for EC2 Windows. Improve productivity and innovate frequently to win markets with Microsoft workloads on AWS' fully managed infrastructure. Apart from a cost-effective, fully automated, and scalable environment, AWS offers a comprehensive set of management tools for Microsoft Windows Server workloads. AWS Cloud offers best-in-class availability zones, improved performance, and reduces the cost for optimizing Microsoft workloads. It also offers incomparable depth and breadth by providing a variety of compute, database, application, and deployment services for Microsoft workloads in a single platform. Learn more about how to seamlessly migrate your Microsoft workloads to AWS Cloud. TCS Answers the Big Questions on Cloud Technology Moving reference data to cloud in capital markets to eliminate issues Secure by Design to Tap the Open Banking Opportunity Reducing Carbon Emission with Smart Energy and Utility Platform Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please

Unlocking exponential value through IoT transformation

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at scale and speed. To maximize the synergies between IoT and cloud and drive greater value for their business, customers, partners and all stakeholders, enterprises need to modernize their applications and database solutions. Public cloud service providers such as AWS offer specialized solutions that can be tailored to specific use cases.   Building the IoT core with TCS and AWS Laying the foundation of an IoT ecosystem: TCS' AWS IoT Core Services offers reference architecture blueprints that enable secure, bi-directional communication for connected devices to establish control, manage, and monitor high-value assets. This provides better visibility into asset utilization, reduced communication latency for smarter decisions, and a reduction in operational overheads. Helping enterprises master their IoT journeys: TCS brings together our IoT and digital engineering expertise, contextual knowledge of industry-specific requirements, and extensive experience of working with AWS IoT solutions to help enterprises master their IoT journeys. We help enterprises achieve servitization of industrial equipment, build intelligent connected products, and establish interactive control of high-value assets and fleet. Strengthening the IoT core: We leverage other AWS solutions that complete the IoT solution architecture. AWS IoT Greengrass for managing intelligent device software; Amazon DynamoDB that provides a managed, serverless database for running applications; and Amazon Relational Database Service that helps set up a relational database in the cloud are just some examples. Build a connected, secure ecosystem for growth. Connect your enterprise devices at scale—without the need for provisioning or managing servers. Experience greater flexibility in communication—you can choose your preferred industry-wide standard communication protocol from among MQTT (an OASIS standard messaging protocol for IoT), HTTPS (hypertext transfer protocol secure), MQTT over WSS (WebSocket over an encrypted TLS connection), and LoRaWAN (a proprietary low-power wide-area network modulation technique). Ensure end-to-end encryption and security with mutual authentication across devices enabled on different data layers. Derive real-time actionable insights from data. Here are some of the unique advantages that we bring to an IoT engagement: A decade-long partnership with AWS, delivering products and solutions. We are a service delivery competency partner on AWS IoT Core. Accelerators and best practices for efficient IoT development. Architecture blueprints for industry-specific IoT use cases. A successful track record across multiple engagements using AWS IoT Services. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

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address all requirements end-to-end. We collaborate with leading cloud service providers, such as AWS, to create customized TTH services that help organizations harness the power of cloud and deliver omnichannel travel experiences. These services offer full cloud-play on AWS cloud spanning discovery, assessment, foundation, migration, modernization, data, AI/ML, IoT, AWS Connect, and AWS Workspace. AWS Native Services allows industry players to scale and be agile in changing times. TCS has launched TCS Aviana™, an AI/ML-based solution suite that enables comprehensive operations visibility, digital collaboration and augmented decisions through connected insights and intelligence. TCS Aviana™ can be deployed on AWS. TCS has created a TTH value chain using next generation technologies such as blockchain, IoT and edge, to provide cloud transformation accelerators. The best practices that guide this suite of TTH solutions include: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS' AI and machine learning services for AWS

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collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are adopting AI and machine learning (ML) to leverage deeper insights from data and improve customer experience. TCS helps enterprises unlock the potential of AI and ML at scale using AWS AI-ML services. We help companies at every stage of their AI-ML journey through our industry-specific contextual knowledge. Embed purpose-built AI-ML models into your digital fabric for faster customer-centric innovation. Standardize ML development processes and set yourself up for AI innovation at scale. We help standardize ML development processes and empower developers and data engineers with our ready-to-use IP solutions. Built using AWS AI-ML services, they are designed for easy data extraction and analysis, understanding natural human interactions, boosting developer productivity, and more. Our services include: Embed AI-ML into your business for intelligent operations. Increased customer loyalty with personalized customer experience Increased profit through accurate sales forecast and efficiencies in inventory maintenance Instant data extraction from business documents without manual effort for real-time decision making Improved operational efficiency via self-managing infrastructure Leverage deep understanding of industry context and systematic innovation engines to maximize value from your AI-ML investments. With TCS Pace Port™, we are able better to guide clients through discovery, refinement and delivery phases of AI-ML innovation. TCS COIN™ brings together a network of AI-ML experts from the start-up, research, academics, and corporate worlds to work on collaborative innovations for TCS' Fortune 1,000 customers. We leverage Machine First Delivery Model (MFDM™) to amplify human-machine collaboration and solve complex business problems, faster and better. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height
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TCS Mainframe Modernization Services for AWS

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Amazon native services such as Amazon EC2 instances, AWS ELB, Amazon S3, Amazon RDS, Amazon Identity and Access Management and can be customized to meet specific business requirements. Automation, cost efficiency, and innovation are embedded in TCS' approach to modernization. Other key differentiators that set our solution apart are domain-specific reference architecture, and accelerators such as TCS Cloud Counsel, ZippMasterCraftTM, ZippedAgile, and Modernization Propeller. With TCS' service, you can easily move your mainframe workloads to AWS and achieve: Reduction in mainframe capex costs and technical debt. Enhanced ability to innovate and faster go to market. Lower upfront investments. Greater agility and scalability. TCS manages over half-a-billion mainframe MIPS for enterprises across the world. TCS Mastercraft has transformed over 300 million lines of legacy code to Java and has over 220 patents on code analysis, reverse engineering, and code transformation. With deep domain knowledge of legacy systems such as IBM mainframe, TCS is in a unique position to help enterprises achieve digital transformation. A pioneer in IBM mainframe services for more than three decades, we have been helping large organizations adopt the latest technologies. We have invested in IBM Z-series mainframes to train experts and co-innovate new solutions with IBM. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Simplify data migration with TCS' AWS Data Migration Service

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catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Migrate your data to cloud easily and securely with AWS Database Migration Service. Database migration is a complex and time-consuming process, and particularly so when recoding and converting data for new typse of databases are involved. As it often requires database to be down for weeks, database migration can impact your operations, and hit your brand and bottom line.   With TCS' AWS Database Migration Service (DMS), you can make database migration faster, simpler and cost-effective. Thought data migration means database downtime? Think again. TCS' AWS DMS makes it easy to migrate your data to cloud—whether it's data warehouses, relational databases, nonrelational (NoSQL) databases or other types of data stores. You can easily and securely migrate or replicate data warehouses and databases such as Oracle, MySQL, PostgreSQL, MS SQL Server, and MariaDB to AWS. All this while your source database remains fully operational, minimizing downtime to applications that rely on the database. You can choose bespoke lift-and-shift, move-to-managed, or migrate-and-modernize paths to AWS Cloud. You can also opt for a suitable data platform on AWS that supports data types like relational data, key-value database, documents, in-memory, graph, time-series, and ledgers. Leveraging tools like AWS Schema Conversion Tool (SCT), the solution makes even heterogeneous database migrations—where the source and target databases engines are different—seamless. SCT first converts the source schema and code to match those of the target database. We also leverage proprietary TCS solutions such as TCS MasterCraft™ TransformPlusR that enables data discovery, target build, migration to a data warehouse, legacy data modernization, and ERP to ERP data migration. The accelerator helps in the transformation of data by capturing required meta information, enabling source to destination targets, and generating data extraction and migrating codes as well as migration-related reports. From agility and scalability to lower costs, realizing value from cloud is easy with TCS' AWS DMS. We make the most of AWS DMS to ensure: Minimal downtime: AWS DMS continuously replicates the changes to your source database during migration while keeping your source database operational. Supports widely used databases: AWS DMS can migrate your data to and from most of the widely used commercial and open-source databases. Fast and easy setup: A migration task can be set up within a few minutes in the AWS Management Console. Low cost: AWS DMS offers free services for migration to Aurora, Redshift, DynamoDB, or DocumentDB. Reliabilit: A self-healing service, AWS DMS automatically restarts in case of an interruption. TCS has helped Fortune 500 customers to migrate and modernize their database from on-premise to AWS Cloud data platform.

When you work with us, you can benefit from our domain knowledge across industries, our proprietary solutions, and deep experience in driving cloud transformations. You can leverage: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height

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Data management with Amazon RDS

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Limited in-house resources and fragmented management systems often lead to ineffective database administration and increase the time-to-market of applications. Besides, traditional databases running on dedicated servers and storage create an inflexible ecosystem that is cumbersome and time-consuming to manage. Most enterprises continue to use multiple databases that run in silos, making day-to-day database management, compliance checks and security management challenging. A scalable and secure cloud database management system helps reduce mundane administrative tasks and speeds up time-to-market for applications which is crucial to accelerate the development of a cloud-native environment. TCS helps clients modernize their database management landscape to achieve scale, enhance agility, innovate and launch new services faster. Among the key accelerators TCS has developed are the Database Engineering and Management Suite and the fully managed Enterprise Cloud Platform Database-as-a-Service (ECP DBaaS) apart from the migration frameworks as well as tools and accelerators for cloud databases. TCS has helped clients to migrate from on-premise database to cloud-based databases such as Amazon Aurora using Amazon RDS services like Schema Conversion Tool (SCT) and Database Migration Service (DMS). Amazon Aurora is offered as a relational database-as-a-service with a fully managed relational database engine that is compatible with MySQL and PostgreSQL. Amazon Aurora offers high-performance clusters of MySQL and PostgreSQL databases with distributed storage. Based on the enterprise's requirements, Amazon Aurora can be scaled up to 15 Aurora Replicas as database cluster to support read-only queries, and the replicas can be placed in multiple availability zones (AZ), allowing for global distributions. Amazon Aurora is also offered as a serverless database service by using storage sub-system and auto-scaling, with serverless capabilities. TCS' Data and Analytics services on AWS helps enterprises to: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height
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TCS services using Amazon API Gateway

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and modernization on AWS is combined with expertise on Amazon API Gateway which involves assessing the current workload for API enablement, recommending the adoption roadmap, and offering reference architecture blueprints along with robust DevOps pipelines. TCS has deep experience in implementing Amazon API Gateway coupled with rich industry-specific and contextual knowledge of client's business. TCS' open banking API framework is purpose-built for the banking and financial services industry. TCS has also partnered with global enterprises to successfully implement serverless, modernized landscapes using Amazon API Gateway, ECS Fargate, DynamoDB and RDS as key services. TCS' offering delivers the following benefit: TCS brings several advantages to the engagement, including: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Data, integration, and analytics services on AWS

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deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are grappling with multiple data sets spread across the enterprise that reside in silos, often in legacy technologies and disjointed databases, data warehouses and data lakes. They try to harness a myriad set of reporting and analytical tools to integrate these disparate data sets for retroactive decision making. The need for an integrated set of solutions has become paramount to manage and derive meaning out of data which serves as key inputs to uncover insights by applying the latest techniques in data science and machine learning. AWS provides a flexible approach for developing solutions tailored to the needs of enterprises already operating in AWS cloud environments. TCS Data, Integration and Analytics (DIA) services focus on enabling and accelerating customer value in AWS environments. With broad and relevant expertise on data solutions on AWS cloud, TCS offers services in database transformation with data migration, modernization, archival, integration with data warehouses, formation of data lakes in AWS, real time and operational analytics, and data governance.   TCS' DIA leverages several key cloud-native services such as Amazon RDS, Amazon Aurora, Amazon DynamoDB, Amazon EMR, Amazon Redshift, Amazon Database Migration, Amazon SageMaker, Amazon Athena, AWS Glue, Amazon Kinesis and Amazon QuickSight. With TCS' services, organizations will be able to: Being sensitive about sensitive data Accelerating data warehouse modernization on AWS How to run successful data recovery on cloud Protecting data from internal threats using AI TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Big data platform orchestration on AWS

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and accelerators in moving from on-premise to AWS EMR. TCS' Data and Analytics Services on AWS would help to: Strong partnership between TCS and AWS include: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height
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Event-driven, serverless computing with AWS Lambda

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automation solutions for serverless computations from cloud-service providers such as AWS. AWS Lambda has helped enterprises look at cloud differently, especially from the lens of managing underlying infrastructure. Powered by automation, AWS Lambda enables developers to control cloud environment in an event-responsive manner. Enterprises want to leverage serverless compute services that help to run code without provisioning or managing servers. AWS Lambda compute has seen rapid adoption, both from enterprises who can migrate specific functionalities to AWS Lambda without the need to migrate the underlying infrastructure, and also from those enterprises that are starting on their cloud journey. The service helps in creating workload-aware cluster scaling, maintaining event integrations and in managing runtimes. Today, most of the modern applications that span organizational boundaries call for various execution patterns for functionalities. For example, AWS Lambda combined with Amazon API Gateway, responds to synchronous API calls, S3, and from other services on AWS for asynchronous or event-based processing. Lambda also integrates well with other services such as Amazon Kinesis to address data streaming needs. TCS services on AWS Lambda helps enterprises accelerate their modernization journey, leveraging its deep knowledge of migration and modernization on AWS cloud. It assesses current workload for enablement of AWS Lambda, recommends adoption roadmap, provides reference architecture blueprints, and suggests development frameworks such as AWS Serverless Application Model (SAM) along with robust DevOps pipelines. AWS Lambda needs to be correctly configured on various parameters such as memory size, languages and runtimes, provisioned concurrency and code optimization to achieve optimal performance in a cost-effective manner. TCS has successfully implemented various use cases such as data processing, real-time file and stream processing, machine learning, backend for web, IoT and mobile applications using AWS Lambda and other serverless offerings from AWS. TCS' offering delivers the following benefits: TCS brings several advantages to the table, such as: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ===================== ----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/aws/solution/mainframe-modernization-migration-legacy-system -----
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infuse models within core business processes, addressing multiple internal functions from contract management to HR functions to contact center and reimagining service desk AI driven coding assistants enabled by Amazon CodeWhisperer service helps drive overall developer productivity across SDLC. Provide guidance to customers generative AI adoption on domain contextualization, secure customization, Security guardrails and LLMOps. TCS' AI-ML and Generative AI offerings on AWS provide enterprises with the following benefits: Eliminates human error thereby reducing business risk and security threats Provides scalable solutions that can accommodate varying user intent Handles emerging business complexities with AI-powered engines Assists in customer support and augments customer experience Accelerates R&D to provide innovative cutting-edge disruptive solutions TCS COIN™ network supports a robust innovation paradigm. TCS MFDM™ approach helps enterprises in AI-ML adoption maturity. TCS-AWS co-innovation solutions are tailor-made for customer requirements. Harness LLMs with GenAI agents for effective enterprise use Generative AI and its infusion in marketing TCS' Databricks services on AWS Cloud TCS' AWS Web Application Firewall services Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

TCS' service for Microsoft workloads on AWS

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Containerization with Amazon ECS anywhere

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journey. With deep delivery experience of Amazon ECS, coupled with rich industry-specific contextual knowledge, TCS enables enterprises to seamlessly integrate technology capabilities, achieve higher agility, and de-risk their migration and modernization journey to AWS. TCS' offering for Amazon ECS Anywhere orchestrates container workloads across varying locations - cloud, on-premises, and edge. It includes the assessment of current workload for containerization, recommended adoption roadmap, reference architecture blueprint, and workload hosting pattern (IaaS, PaaS, Serverless), along with robust DevSecOps pipeline for container-specific workloads. With Amazon ECS Anywhere, enterprises no longer have to maintain the master-plane, and workloads can be hosted either on underlying Virtual Machine (EC2) or on serverless model (Fargate). These workloads coupled with other AWS solutions such as API Gateway, Lambda, Dynamo DB, RDS and DevOps serve as the backbone of modern application architecture across enterprises. This allows end-to-end traceability of business containerization initiatives through the development, test, deployment and monitoring life cycle. Amazon ECS Anywhere extends the capability of ECS workload beyond AWS, opening up new avenues of adoption for enterprises interested to run container workloads on premise or on multi-cloud while securely running ECS control plane on AWS. With TCS and Amazon ECS Anywhere, enterprises can: Gain end-to-end visibility of containers with a fully managed cloud control plane Standardize delivery assurance with best-in-class tooling and governance Simplify container management and reduce operational overheads in complex hybrid environments Achieve a cost-effective way to meet compute needs as the business scales   Being a feature partner for AWS Copilot, a command line interface for containerized applications on AWS, allows TCS to deliver optimized solutions Deep technology expertise and end-to-end services including consulting, implementation and managing container workloads Repository of architecture blueprint for industry-specific container use-cases Successful track record across multiple engagements and industries using Amazon ECS TCS Positioned as a Leader in AWS Services in Australia by ISG TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Meet TCS at AWS re:Invent 2024 No matter where you are on your cloud journey, we can help you get maximum value from it. =====================

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allow clients to: Protect your data at transit and at rest. With TCS' AWS Transfer Family service, we help customers: Gain real-time visibility and monitoring of data transfer files. Mitigate the up-front cost associated with infrastructure and remove the hassles of maintaining servers.   Reduce overall cost and reliance on external security tools. Achieve reusability of the same workflow set-up across multiple servers for easy maintenance and standardized configurations. Enable encryption to the files at transit and rest with server-side encryption (SSE-S3) with Amazon S3(SSE-S3) and Amazon KMS (SSE-KMS). Enhance protection from cyber-threats such as DDoS (distributed denial of service) and other vulnerabilities by leveraging the AWS Web Application Firewall and AWS Shield along with default Transfer Family compliance programs. When you work with us, you can make the most of our key differentiators: A decade-long partnership with AWS in delivering products and solutions. Successful track record across multiple engagements using AWS Transfer Family. Compliance with AWS best practices and benchmarks enabled with a strong corporate security posture. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ======================

TCS' Amazon QuickSight services: Driving intelligent decisions

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releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Leveraging BI tools for smarter, better data-driven decisions   When correctly mined and modelled, data can give businesses an edge over competitors. This is where business intelligence (BI) tools come in. They can help enterprises analyze and visualize data—even unstructured ones—and use the insights gained to make smarter decisions. With digital transformation, many businesses have already moved from spreadsheet-based complex reporting that had inherent errors and required frequent refresh to sophisticated, interactive tools such as Amazon QuickSight that can analyze data swiftly and efficiently.   Amazon QuickSight—powering businesses with BI   Leveraging Amazon QuickSight on AWS Cloud, TCS enables businesses to analyze and visualize data, and empowers them with the BI to make better data-driven decisions, at speed and scale. A serverless tool, Amazon QuickSight gives users the freedom to focus on what they need to achieve without worrying about setting up, configuring, or managing servers. Users can study data from various sources and present it in an interactive visualization at a single click. The improved authentication and authorization with built-in security, governance, and compliance makes the solution highly secure. It's also highly scalable and flexible. With an in-memory calculation engine that supports datasets up to 500 million rows or 500 GB in size, users can incrementally load new datasets without having to refresh the full set of data. This reduces the overall consumption of resources and thereby costs. Amazon QuickSight powers millions of dashboard views in a cost-effective, fast, and highly interactive manner Allows user to discover hidden data to analyse and mine insights from, all in an interactive visual environment Accurate forecasting and what-if analysis Empowers visualizations without the need for time-consuming data preparation from authors and admins Seamless embedding of interactive visualizations and dashboards Allows natural language query capabilities in dashboards and applications Access from anywhere using any device (laptop, desktop, smart phone, tablets)—even when offline by installing offline mode   Get to business-critical information quickly and easily Our AWS QuickSight services is helping customers across industries from retail to finance to design, develop and implement sophisticated reporting dashboards and achieve tangible value. 95% reduction of response time for report generation and better user experience Up to 300% improvement in the time taken to run a report and query performance 98% reduction in the time taken to access data as compared to on-premises setup Up to 65% lower total cost of operations (TCO) with AWS Cloud pay per use model compared to shared, on-premises instances Robust business intelligence at 1/10th the cost of on-premise solutions Gain the agility to innovate at speed You can make the most of: TCS' AWS QuickSight consulting and data

discovery workshop. Our expertise in identifying report source data and connection requirements and uncovering all business rules around data manipulation, calculation, and transformation. AWS QuickSight wireframes design based on the existing reporting user interface. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to get the innovation edge with cloud? Theme Font size Line height ======================

TCS' Amazon Kinesis service

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Things (IoT) devices are just some of them. These varied data streams help businesses to learn more about their customers, applications, and products. Analyzing this data in real time is essential to monitor applications, ensure high service uptime, and personalize promotional offers and product recommendations. This requires ingesting massive amount of data in real time to build dashboards for business users to make business-critical decisions. While real-time processing with this kind of real data made available in seconds or minutes instead of hours or days can provide more accurate and actionable insights, many challenges need to be addressed first. Analyze data streams in real time with TCS' Amazon Kinesis service Leveraging Amazon Kinesis Data Streams, TCS helps organizations eliminate real-time data analytics challenges around capturing, processing, and storing massive data streams. Amazon Kinesis is a managed, scalable, cloud-based service designed for real-time applications. It allows users to analyze massive amounts of data from several sources, scaling data up and down as required. Amazon Kinesis makes it easy to collect, process, and analyse data in real time to get timely insights and react quickly. It captures, stores, and processes data such as video, audio, application logs, website clickstreams, and IoT telemetry data for machine learning from distributed streams. The data can then be distributed to multiple consumers simultaneously. We make the most of Amazon Kinesis to help enterprises process streaming data at any scale. Flexibility is another advantage we provide with tools that best suit the requirements of an application. Making all of this possible are Amazon Kinesis capabilities such as: Amazon Kinesis Video Streams: This securely streams video from connected devices to AWS for analytics, machine learning (ML) programs, and other kinds of data processing. Amazon Kinesis Data Streams: A scalable and durable real-time data streaming service, it continuously captures gigabytes of data per second from multiple sources. Amazon Kinesis Data Firehose: This captures, transforms, and loads data streams into AWS data stores for near real-time analytics with existing BI tools. Amazon Kinesis Data Analytics: Simplifying streaming data processing is this solution, which processes data streams in real time with SQL or Apache Flink without programming languages or processing frameworks.   By making it easy to process and analyze data as it streams in, we help businesses respond to market demands faster. Whether it's building real-time applications or real-time data processing, we help them achieve scale, save costs, enhance throughput, and innovate faster with agility. Customers across industries are benefiting from: Real-time processing—Collect and analyze information like stock prices in real time without waiting for data-out report. Ease of use—Users can create a new stream, set its requirements, and start streaming data quickly. Integration with other Amazon services—Amazon Kinesis can be easily integrated with Amazon Redshift to analyze structured and semi-structured data, Amazon S3 for Storage, and Amazon DynamoDB for turning data stream to table format and capture any changes to that data. Build Kinesis applications—Application developers can make the most of Amazon Kinesis' Client Library to design real-time data processing applications. Once added to Java applications, users will receive notifications when new data is available for processing. Cost-efficiency—Amazon Kinesis is cost-efficient for workloads of any scale. It works on a 'pay as we go' model and users can pay for resources on an hourly basis. When you work with us, you can: Gain from TCS' decade-long partnership with AWS in

delivering products and solutions. Leverage TCS' products, solutions, solution accelerators, and best practices for streaming data solutions on AWS. Leverage our framework for real-time AWS IoT device monitoring with Amazon Kinesis. Make the most of our data analytics and data ingestion framework for connected cars. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ======================

TCS managed services on Amazon Elastic Kubernetes Service

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based architecture has become the preferred design pattern for developing modern and decoupled business applications because of its key features such as resiliency, fault tolerance, and scalability. However, microservices-based applications require a platform that can complement them with a highly available orchestration layer for managing containerized microservices. And container orchestration tool Kubernetes has fast emerged as the platform of choice because of its openness and the higher flexibility it offers. As organizations continue to accelerate their migration from on-premises to cloud or natively build their applications, Kubernetes gains further traction across the industry as the vibrant open-source Kubernetes community keeps up the pace of innovation, and allows easier operations and faster turnaround time. But there's the overhead of managing and governing the Kubernetes control plane nodes. This is where Amazon EKS comes in. Helping you build your cloud architecture with Amazon EKS Amazon EKS is a fully managed, cloud-based service to run Kubernetes on AWS Cloud and on-premises data centers. Amazon EKS helps build, secure, and maintain Kubernetes clusters on AWS Cloud. It enables you to run Kubernetes clusters on AWS without installing and managing the Kubernetes control plane or on-premise using Amazon EKS Anywhere. It allows you to deploy and manage containerized applications at a scale. Organizations building a hybrid cloud architecture adopt Amazon EKS for easy integration with external DevOps infrastructure for workloads on-premise or on other hyperscaler clouds. As Amazon EKS is built on open-source Kubernetes, it doesn't cause vendor lock-in or require any application code refactoring. At the same time, organizations can continue leveraging any existing investments made in third-party plug-ins/tools as they continue to adapt to any Kubernetes environment. Developers prefer containers for running cloud-native applications on physical and virtual infrastructure due to ease of scaling and efficient use of infrastructure. Kubernetes is one of the best container orchestration tools used to automate deployments, scale, and manage containerized applications.   TCS has been helping customers across the globe and across industry verticals leverage Amazon EKS to migrate and modernize their enterprise application landscape. Using Amazon EKS, we help them start, run, and scale Kubernetes on AWS Cloud and build their cloud architecture. TCS has built capabilities, offerings, and accelerators for leveraging Amazon EKS as an application delivery platform for SaaS-based applications or in-house shared clusters for development teams. By creating a containerization strategy aligned with clients' digital strategy using our proprietary frameworks and assessments, architecture blueprints, and industry-specific knowledge, we bring a rich implementation experience in deploying and managing container workloads. Better performance, scalability, and availability of AWS infrastructure with Amazon EKS Here's what you stand to gain when you work with us: Cost benefits: With cost optimization through shared clusters, autoscaling, and on-demand provisioning of clusters, 60-80% of current run costs across environments is saved. Performance: Amazon EKS simplifies the process of building a cloud-native architecture in AWS. Users can manage the applications running on their cluster or adjust individual resources using the Kubernetes Dashboard or any other third-party tools without installing, operating, or maintaining their Kubernetes control plane. Integration with AWS services: The solution integrates seamlessly with AWS serverless offerings like AWS Fargate to host container workloads and allows on-premises distribution of Amazon

EKS–EKS Anywhere, AWS Outposts, AWS Local Zones, or AWS Wavelength. Also, integrates easily with AWS networking and security services, and other functions such as Elastic Load Balancing, AWS CloudTrail, AWS Identity and Access Management, and Amazon Virtual Private Cloud. Scalability: Amazon EKS helps to manage the availability and scalability of a Kubernetes API server and the etcd persistence layer. Amazon EKS clusters can be set up within few minutes using GitOps pipelines compared to the many days it takes for on-premise infrastructure provisioning. Make the most of our strong partnership with AWS and expertise in legacy applications modernization. A strong alliance with Amazon Service delivery competency partner for Amazon EKS Expertise in legacy applications modernization to microservices-based architecture leveraging Domain Driven Design (DDD) and microservices architecture patterns Proprietary architecture blueprints for industry-specific Kubernetes enterprise strategies based on use cases Successful track record across multiple engagements using Amazon EKS TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Creating a Generative AI-enabled Enterprise with Anthropic and AWS TCS' Snowflake Services on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

TCS' cloud operations services with AWS Cloud

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industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Efficient cloud operations—a must for realizing cloud value Cloud transformation continues to be one of the top priorities for enterprises. It's not surprising as migrating to cloud helps organizations shift from capex to opex models, and achieve the cost efficiency and agility they need to drive innovation and growth. However, cost-overrun is a real challenge and inevitable due to the continuous scaling of IT environments and associated costs of cloud operations. That's why organizations are investing in people, processes, tools, and solutions that enable them to make cost-performance trade-offs and build a framework for efficient cloud operations. TCS and AWS Cloud work with customers around the world to help them run their cloud operations and realize maximum value from their investments—stronger operational resilience, scalability, greater security, lower costs, and more. Power up your enterprise cloud operations with TCS' AI-enabled cloud operations platform. TCS' cloud operations service delivers smart managed services for hybrid cloud environments. It helps reduce cloud management overheads, offers a consistent service delivery experience, and provides full-stack operations services. TCS' Cloud Exponence platform—a platform for delivering smart managed services based on MFDM™ delivery principles—is a core component of TCS' cloud operations with AWS Cloud. It comes embedded with several cloud-native service management features such as incident, change, and service request management modules. Exponence platform provides a unified multi-tenant architecture, which incorporates service catalogs powered by cloud-native software development kits such as AWS Cloud Development Kit and integrated with various cloud-native features like AWS IAM Identity Center, Amazon CloudWatch, AWS CloudTrail Lake, and Amazon API Gateway. It also leverages AWS Systems Manager for a wide range of functionalities—from automating operational tasks to orchestrating end-to-end workflows for security, compliance, patch deployment, or incident handling. The result? Cost efficiency and increased resiliency of cloud operations. Make your cloud operations resilient, reliable, and secure. With TCS' cloud operations service leveraging AWS Cloud, you can achieve: Up to 25% optimization in operations in operational cost through automation. Real-time operations visibility with monitoring and observability, helping reduce incidents and mean time to repair. Incremental savings of up to 30% by right-sizing instances with FinOps insights. Reusability of the catalogs and workflows for ongoing cloud provisioning. Standardized processes and automated cloud management. CloudOps platform with built-in security configuration baseline enforcement. Craft a holistic cloud operation model with our key differentiators. When you work with us, you can make the most of our: Over a decade of global experience in delivering cloud operations and automation. Successful track record of supporting customers from all verticals including regulated industries and all from all geographies. End-

to-end cloud migration and modernization services from consulting to design and implementation with cloud managed services.   Portfolio of best practices, quick-start deployment templates, tools, and accelerators making the cloud operations smoother for customers. Seamless Patch Management on Hybrid Cloud with TCS Cloud Exponence Five-point Strategy for Efficient Cloud Operations Beverage Firm Builds Central Network Connectivity Star alliance making travel experience better with TCS' solution No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

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digital channels, there's been a rise in the use of chatbots for customer self-service over the last few years. And while customers have also taken to them, there are still some challenges to be addressed. For instance, chatbots are designed in such a way that they take longwinded, pre-defined paths that are not user-friendly. Often, chatbots are unable to adjust to the varied communication styles of customers and fail to resolve intent, resulting in calls being transferred to live chat agents. They need continuous monitoring for effectiveness and constant code deployments to handle changes to the conversational flows dynamically. Redefine customer experience with AI assistants that are context-aware, powered by predictive intelligence, and allow natural language. TCS' conversational AI offerings leverage Amazon Lex and Amazon Connect to provide customers a hyper-personalized experience. Our AI offerings are embedded with the following features: Conversational IVR by design: We leverage Amazon Connect's natural language Interactive Voice Response (IVR) capability and AI/ML services to provide context and enable customers to use natural language to get their queries resolved. Context-aware: Conversational AI agents leverage NLP and ML to sense customer intent and get accurate, relevant responses quickly. Predictive intelligence and analytics: These are used to tailor responses based on user profiles and preferences, and provide recommendations based on historical data. Consistent omnichannel customer experience: Our conversational agents are available across digital channels so customers have the same experience across channels. Taking AI to a more human level Here's how conversational AI can enhance customer experience and bring greater value for your business: Intuitive and natural – Enables customers to use natural language to get answers to their queries Cross-sell/Upsell – Opens upsell opportunities with predictive analysis Accuracy – Offers the most accurate results for frequently asked questions Personalization – Provides customized responses and recommendations based on insights from data on user profiles and preferences Reduction in operating costs – Reduces operating costs 10-15% by bringing down the number of calls handled by human agents and providing 24/7 self-service option When you work with us, you can make the most of our expertise and strong partnership with AWS. TCS' application development and support engineers provide comprehensive, tailored solutions to meet business requirements. Our associates are trained and certified in implementing customized Amazon Lex and Amazon Connect contact centers. We have a proven record of delivering conversational experience solutions to customers from across industries. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights Cloud security solutions to help firms build secure infrastructure TCS Quantum Computing Lab on AWS Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ====================

TCS Supply Chain Management (SCM) services

Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy Grow, Innovate, and Transform with TCS and AWS Cloud Highlights In this article Overview Solution Benefits The TCS advantage Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Mastering supply chain complexities is a challenge for most companies. Supply chain resilience is critical for companies to outpace disruption, meet market demands, and grow their business. And so, businesses are reimagining their supply chains by embracing sustainable practices and focusing on increased agility in processes, information delivery, smarter decision-making, and customer experience. While there has been progress on many fronts, several challenges remain. Some of these are cost-effectiveness, timeliness in evaluating the performance of supply chains, demand prediction, inventory management, data heterogeneity, last-mile delivery, and reverse logistics. TCS can help with our SCM expertise and industry-ready solutions built over decades of industry experience, and with the power of AWS Cloud. Manage SCM operations better with TCS Supply Chain Management services on AWS Cloud. TCS' integrated SCM

services leverage AWS Cloud service and infrastructure to make SCM processes faster, stronger, and scalable for enterprises. We offer consulting services and solutions to help enterprises create a responsible supply chain and realize their net-zero goals. We take a collaborative approach to understanding the complexities of enterprises' SCM operations and finding solutions to transform their supply chains and meet their business objectives. Through our services in consulting, data platforms, advanced analytics, and machine learning, we help reimagine logistics and packaging with a focus on creating a circular economy; generate accurate demand forecasts; improve stock keeping unit (SKU) management; enable accounting, analytics, planning, and scheduling; and optimize inventory. The result? More sustainable and agile supply chain operations. We also leverage TCS products and solutions such as TCS Optumera™, TCS DigiFleet™, and TCS Crystallus™ to help address challenges across the SCM value chain— planning and forecasting, sourcing and inventory management, logistics and transportation, warehousing and storage, and more. Building sustainable supply chains of the future. Using TCS' SCM services on AWS Cloud, enterprises can: Collaborate with TCS to make the most of our key differentiators. TCS' sustainability and circularity programs enable enterprises to realize significant gains from optimized and realigned operation strategies. We have deep industry experience with 7,000 SCM specialists and 10,000 AWS specialists working across 125 customer engagements, delivering successful SCM project implementations across manufacturing, CPG, retail, and life sciences. In-depth digital experience across AWS Cloud, 5G Edge, blockchain, IoT, AI/ML, advanced data systems, data, and analytics capabilities that are consistently endorsed by leading analyst and research firms. TCS' proprietary solutions for cloud migration and modernization that include TCS Cloud Migration Factory, TCS Cloud Exponence, TCS Optumera™, TCS Crystallus™, and TCS DigiFleet™. TCS' partnership model where enterprises invested and involved in the SCM transformation journey can view the benefits that proposed solutions will bring. Retelling the future of retail with technology-driven intelligence Implementing 3PL Solution for BT Supply Chain to Transform Business TCS Recognized as a Leader in Supply Chain Management BPS by Everest Group Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS' quantum computing services on AWS

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leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related Reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Helping enterprises explore, develop, and test quantum computing-powered business solutions at speed You have these already downloaded We have sent you a copy of the report to your email again. Highlights Quantum computing – driving business innovations and growth using cloud. Thought quantum computing would be in the distant future? Think again. A steady increase in investments, number of startups, venture capitalist (VC) funding, and patent filings in the area of quantum computing all point to the fact that the technology is well on its way to becoming mainstream in the next few years. Considering the rate at which the technology is evolving, now is the right time for businesses to start experimenting with quantum computing to understand potential opportunities and threats for their businesses. At TCS, we are working on novel quantum algorithms for diverse use cases across quantum optimization, machine learning, chemistry simulations, and security.   We are also working on developing assets that could help accelerate and manage experimentation, benchmarking, and development of quantum algorithms.   The TCS Quantum Computing Lab on AWS leverages Amazon Braket, a fully managed quantum computing service from AWS, to design industry-leading solutions, build domain-centric performance benchmarks, and drive hackathons. TCS' framework for enterprises to get started on their quantum computing journey. As quantum computing is still evolving, a prudent approach for most organizations would be to defer decisions related to big investments in specific technology stacks, and instead focus on identifying the right use cases to invest in. TCS' Quantum Value Discovery framework can help. The framework covers four stages of experimenting with quantum computing—evangelize, analyze, co-innovate, and showcase and scale. The framework aims to provide our customers a low-cost and low-risk model to get started and progress on their quantum computing journey by: Seeding initial capabilities. Helping customers

explore opportunities and threats in their business context and charting a roadmap to be ready for the future as the technology matures. Collaborating to build early prototypes and proofs of technology (PoT) to validate the promise of quantum computing in their business. Scaling the PoTs to proof of concepts as the technology matures, to get to eventual business value. TCS Quantum Computing Lab on AWS provides the quantum computing infrastructure to support the value discovery process. It helps enterprises explore, develop, and test quantum computing-powered business solutions at speed using reusable artifacts like algorithms, interactive simulator and knowledge management. At our lab, clients can experiment and see for themselves how quantum computing use cases such as image anomaly detection, truck load optimization, route optimization, time series forecasting, portfolio optimization, and more can make a difference for their business. Discover the quantum value for your business. Through pilots conducted jointly with AWS and our clients within the TCS value discovery framework, we help businesses find the value in quantum computing. We help: Make stakeholders sufficiently aware, engaged and informed to take decisions about quantum computing in their respective domains. Enable faster development and the realization of applications through competition and collaborative environment. Build and sustain a quantum-ready workforce. Promote set standards and road-mapping mechanisms to accelerate the development of the technology. Develop a sustainable future with and for quantum computing technology. When you work with us, you can make the most of our rich pool of talent, expertise, the best of our capabilities, and strong partnerships. Researchers with the capability to solve new problems that may be encountered during your quantum journey. Technology experts in optimization, machine learning, chemistry and simulation, and security. Domain experts across all industry verticals. Our ecosystem of partners across established technology providers, startups, academia, and research institutes from where the best set of participants and capabilities can be brought together to provide an ideal solution in every situation. Our proven ability to deliver across technologies, industries, and geographies; and a track record of enduring relationships with customers. Unlocking quantum computing early on Is Your Business on the Quantum Computing Super Highway Yet? Quantum Computing: Driving Fast, Accurate Decision Taking the Quantum Leap, Now Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS' telco services on AWS Cloud

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technology companies. It incorporates key offerings that allow: Deliver exceptional experiences and reimagine your business and that of your customers. With TCS' telco services on AWS cloud, you can: Implement frictionless and elevated B2B, B2C, and B2B2C customer experiences. Increase average revenue per user (ARPU) through bundled services. Drive faster time to market with a robust digital core that allows agility and flexibility. Offer proactive maintenance, enhanced security, maximized performance, and increased productivity for telcos with NaaS through APIs. Deliver industrialized 5G solutions for manufacturing, retail, energy, and utilities—helping overcome the challenges of outdated industrial automations in factories, warehouses, retail outlets, remote assets, and fleet (ships, trucks, etc.). Improve industrial automation through low latency and high bandwidth availability with 5G and edge solutions. Provide cost-effective and efficient connectivity options for edge computing through the implementation of cutting-edge technologies like integrated private wireless (IPW) and Wi-Fi6. Lower the total cost of ownership (TCO) with TCS' automation- first principles, minimizing manual tasks and increasing faster rollout of services. When you partner with us, you can make the most of our key differentiators. Our collaboration with 160+ CSPs in 34 countries. Partnership with a broad spectrum of vendors for devices, radio access, and core networks. 10,000 professionals focused on telecom across the globe; deep industry experience from across 100+ customer engagements, delivering successful telco cloud and telco network project implementations. Strategic partnership with AWS through which we bring the best of TCS and AWS to power our clients' transformation and growth journeys. TCS HOBS™: DNA digitalizes legacy IT stack for personalized CX Cloud migration strategy: How Foxtel transformed its digital landscape Why cloud is key to telco network transformation TCS to Help Converge Improve Customer Experience and Further Accelerate Growth Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS automotive services on AWS Cloud

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generation of AI-infused test cases and edge scenarios to enhance the validation process and accelerate time to market using TCS Mobility Autonomous Vehicle Solutions. Intelligent manufacturing: Transform automotive services with an intelligent value chain offering personalized, connected, resilient, and smart products and assets. Our services include: 1) TCS InTwin™ – an AI platform that enables users to rapidly create, deploy, and manage manufacturing digital twins. 2) TCS Clever Energy™ – an enterprise-level energy and emissions management system for commercial and industrial setups 3) ERP on AWS Cloud – a solution that enables a seamless cloud adoption journey with S/4HANA on AWS, powered by TCS Crystallus™ and TCS ConvertCore. Product engineering services: Provide insights into complex automotive product development life cycles and drive agility to reduce the time between design and product launch. Our suite of services covers: 1) Physical automotive products such as automotive components, body, chassis, electric batteries, charging systems, wire harnesses, engines, electric motors, and other EV components. 2) Systems such as autonomous and advanced driver-assistance system, infotainment and navigation systems, controls, and electronic control units. TCS' integrated supply chain management solutions: Create faster, stronger, and more scalable processes by: 1) Reimagining logistics and packaging with a focus on creating a circular economy. 2) Generating accurate demand forecasts and improving stock keeping unit management. 3) Enabling accounting, analytics, planning, scheduling, and optimizing inventory. TCS Sustainable by Design Suite: Unlock the economic, social, and environmental value that enables sustainable processes, products, and services while designing connected value chain operations and purpose-centric ecosystems. Some of our key offerings include TCS Clever Energy™, ESG Integration, and Carbon Accounting and Rewards for Environment. Transform your automotive business from inception to delivery. TCS Automotive Services on AWS helps automakers and suppliers transform their business end to end. This helps them: Enable concurrent product development and testing Build resilient supply chains Create customized vehicles quickly with autonomous factories Enhance operational agility Improve product quality amid shrinking cost and time cycles Drive sustainability by design Enhance customer experience by connecting vehicles to broader ecosystems Partnering for success Our strong partnership with AWS and experience in building automotive-specific solutions and frameworks help automakers accelerate their digital transformation journeys and embrace new business models across the entire automotive value chain. TCS Neural Manufacturing™ Framework helps automotive enterprises define their business models and embrace neural traits in their operations. Our neural automotive and industrial experience center helps deliver differentiated customer experience. TCS is ranked as a leader in automotive engineering services, supply chain services, engineering R&D services, and IoT services in multiple analyst reports, including those by Everest, IDC, and HFS. TCS Launches Mobility Cloud Suite to Supercharge the Future of Automotive Enterprises TCS Mobility Autonomous Vehicle Solutions TCS Mobility Connected Vehicle Solutions Neural Manufacturing™ Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height
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TCS' solutions for Amazon OpenSearch Service

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including search across e-commerce platforms, document management systems, websites, and portals—all of which can be used to provide personalized recommendations. They also address key log analytics and observability use cases to produce critical insights on application or security monitoring. Amazon OpenSearch Service allows customers to perform interactive log analysis, do real-time application monitoring, conduct website search, and much more. They also provide visualization capabilities powered by OpenSearch Dashboards. Using machine learning features, they can detect anomalies in real time, scale infrastructure up or down depending on the requirements, and personalize search results. We leverage Amazon OpenSearch to: Monitor and analyze business and operational data. Quickly search and analyze unstructured/semi-structured data. Reduce operational overhead and cost using managed services and serverless capabilities of Amazon OpenSearch. Ingest data (including text, image, audio, and video formats) from various sources using schedulers, batches, and push/pull methods. Index the ingested data to provide quick search results. Extend search capabilities in your cloud environment. Using our solutions, you can: Leverage our contextual knowledge and strong partnerships.   TCS Aviana™ Helps United Airlines Get Off to a Flying Start BASF leverages AWS Cloud for intelligent digital farming Tech-powered Models in the Insurance Sector: Reclaiming the Unclaimed Property Cloud-based Contact Center Solution for AI-Powered CX Collab Space Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height ======================

TCS Cyber Insights Platform on AWS

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competency. TCS has been announced as the AWS Security Lake General Availability Launch Partner in May 2023. TCS brings a decade-long partnership with AWS in delivering secure products and solutions.   TCS Becomes AWS Security Competency Partner Security and Compliance Solution for AWS Secure and Compliant Enterprise Innovation with AWS Life insurer adopts a zero-trust framework Drive AI-powered insights using a unified environment with our TCS Cyber Insights Platform on AWS. Theme Font size Line height =====================

TCS manufacturing services on AWS Cloud

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integral to this transformation. Manufacturers are revisiting their operational practices and business models to create an ecosystem that is future-ready and driven by the cloud. TCS' manufacturing services on AWS Cloud can help manufacturing organizations become more intelligent, resilient, adaptive, and purpose-driven through connected, cognitive, and collaborative capabilities. Building digital thread on the cloud for manufacturing value chain Leveraging a suite of manufacturing services on AWS Cloud, TCS can help transform businesses by enabling concurrent product development and testing, autonomous factories, resilient supply chains, and superior customer experience across the industrial manufacturing value chain. Our manufacturing services on AWS Cloud include: Transforming the manufacturing value chain With TCS' manufacturing services on the AWS cloud, we have helped many customers to: Reduce manufacturing time and improve efficiency by ensuring better product quality and safety on the shop floor. Build or alter products quickly using data and evidence-based decisions to improve speed to market and gain lead-in advantage. Improve flexibility and availability of operations with innovative connected products and assets. Reduce logistics costs and secure your supply chain by connecting and monitoring assets on the move. Ensure circularity and sustainability in business operations. Partnering for business success TCS partners with leading automotive, aerospace, and defense enterprises, manufacturing and chemical, industrial machinery, and agricultural organizations to support their growth and sustainability business needs. Our neural manufacturing framework helps customers become agile and responsive to change. TCS' established global footprint helps deliver smoother rollouts and robust post-implementation support. Our co-innovation and advanced research ecosystem have a neural automotive and industrial experience center, which helps deliver a differentiated customer experience. TCS is recognized as a leader in automotive engineering services, supply chain services, engineering R&D services, and IoT services. Neural Manufacturing™ TCS Cognitive Plant Operations Adviser for Intelligent Plant Process RS Components gets its customers closer, and its costs lower TCS Supply Chain Management Services on AWS Cloud Learn how TCS can help you use AWS to modernize manufacturing. Theme Font size Line height
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TCS energy and utilities services on AWS Cloud

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hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Accelerate the energy transition with cloud You have these already downloaded We have sent you a copy of the report to your email again. Re-energizing the energy industry through digital transformation Energy and utilities organizations are leading the transition to sustainable energy sources that can help limit climate change. This means discovering reliable and low-cost energy sources and addressing the complexity of managing grid operations with a shift to renewable energy, decentralized energy generation, and electrification of transportation. With these expectations and challenges, investing in digital transformation has become a strategic imperative for energy organizations to keep pace with the competition. TCS' energy and utilities services on AWS help organizations harness the power of cloud to meet the future needs of the energy industry.   Helping organizations become agile with scalable and reliable infrastructure. With TCS' energy and utilities services on AWS, organizations can adopt cloud and accelerate large-scale business transformations across the value chain. Our services help organizations: Automate and standardize field asset inspection and vegetation management for accurate anomaly detection with TCS' Machine Vision platform. Obtain insights and improve decision-making for grid and device management and consumption profiling using smart meters. Generate insights into strategy, planning, and operations with TCS' proprietary tool that simulates the creation and use of electricity across the value chain. Optimize power plant performance to operate at full and even partial load conditions with TCS' intelligent power plant. Make industrial plants (energy generation plants, waste management recycling plants, etc.) intelligent, responsive, and future-ready with TCS InTwin™. Manage multiple energy functions in an organization and support integrating heterogeneous systems and assets with TCS Clever Energy™. Deliver subscription management capabilities in an electric vehicle charging

ecosystem, with integration across car owners, charging stations, and other partners, using TCS HOBS™ Electric Vehicle Charging solution. Leveraging these services and AWS capabilities, we help companies plan for cloud transformation across three horizons: building a digital core, leveraging cloud to deliver business transformation (for instance, in asset management or field service), and creating new business opportunities and perpetual value (in distributed energy resource, wildfire or storm management, distributed intelligence, and more). Helping organizations achieve their net-zero goals while elevating customer experiences TCS' energy and utilities services on AWS Cloud help organizations build their digital core and drive energy transition initiatives. Our services help companies: Achieve net-zero goals. Reduce technology debt and modernize the estate to improve business agility. Reduce operational costs and limit business risks. Deliver industrialized IoT, 5G solutions, and AI/ML-based distributed intelligence to manage grid operations better and improve resiliency. Improve operational efficiency with digital asset management and field service solutions. Build next-gen, domain-driven data and analytics platforms and leverage AI to accelerate time to insights and simplify access to business data. Enhance the customer experience with contact centers that work seamlessly across channels. Drive rapid innovations and generate new revenue streams. Creating a cloud-based digital ecosystem TCS brings domain and technical experience from 20+ years working with 100+ electricity, gas, and water utilities. A large pool of skilled, AWS-certified resources can deliver a seamless cloud journey. Our proprietary products and accelerators for cloud modernization include an immersive, full-service framework for cloud transformation, spanning across transformation readiness assessment and strategy, development at scale, and next-gen operations. TCS has been ranked as a leader in energy and utilities services in multiple analyst reports, including those by Everest, IDC, and ISG. Reducing Carbon Emission with Smart Energy and Utility Platform TCS' IoT Solutions on AWS: Driving Large Scale Transformations Thriving in the New Energy Economy TCS Clever Energy™: Energy Management System for Better Sustainability Learn how TCS can help you accelerate your digital transition. Theme Font size Line height =====================

TCS' Databricks services on AWS Cloud

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data and analytics test automation including test case management, test case design, and reusability across projects. Automated data monitoring and observability form an integral part of our service. For this, we leverage Databricks' features such as Databricks system tables, Databricks alert, and SQL APIs, as well as Amazon QuickSight. An emerging practice in modern data architectures, automated data monitoring and observability enables proactive management of the health of modern data environments. We monitor Databricks usage details, job and query performance, cost and billing for processing data, audit events, and user activities. We also enable advanced capabilities to visualize table and column-level lineage of data assets, and Databricks' AI capabilities to forecast billing and usage patterns. Our services draw upon highly effective and proven techniques of governance and application performance management. Gain agility and accelerate time to value. TCS' Databricks services on AWS help enterprises drive agility and innovation with ready access to the latest and most complete data; faster insights, advanced machine learning, and more. Key benefits: Rapid implementation of advanced data management platform on cloud for an accelerated time to value Flexibility to iterate for continuous integration and continuous delivery (CI/CD) Seamless migration of data from multiple sources, and data management at business application layer with our end-to-end services Lower costs, enhanced productivity, and relevant insights for superior customer experience Gain an edge with our expertise in data and cloud transformation with accelerators, and frameworks for successful migration. When you work with us, you can make the most of our: Consulting and solution advisory workshops curated to enable unique and successful cloud journeys. TCS' expertise in identifying the most effective migration approaches and emulating business rules for data manipulation, calculation, and transformation. Data migration accelerators and frameworks for enhanced productivity and faster time to market. Accelerating data warehouse modernization on AWS Data, integration, and analytics services on AWS Harnessing the power of cloud with Jaguar TCS Racing TCS' Amazon Redshift Services Accelerate adoption of a unified, open, and scalable data platform on cloud with end-to-end, automated migration on AWS. Theme Font size Line height
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TCS Snowflake Services on AWS

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performance, productivity, and superior customer experience with data modernization. TCS Snowflake Services on AWS empowers enterprises to accelerate data modernization for enhanced performance, higher productivity, and superior customer experiences. Some of the key benefits are: Provide unparalleled scalability, flexibility, and data security to unlock the power of data-driven enterprise transformation. When you work with us, you can make the most of our: Accelerating Data Warehouse Modernization on AWS Data, Integration and Analytics Services on AWS TCS' Databricks Services on AWS: Driving Enterprise Agility TCS' Amazon Redshift Services Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS Anthropic Services on AWS

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AI, companies need to chart a clear AI strategy and address scalability, ethics, and privacy challenges.   Companies are rushing to tap into the potential of AI to improve productivity, unlock innovation, drive efficiencies, and enhance experiences. But as the TCS AI for Business Study shows, there's no consensus on the right AI and generative AI (GenAI) adoption strategies and there are scalability, ethics, and privacy challenges that need to be addressed. A concern for companies is how to ensure that solutions using LLMs protect their data and comply with regulations. Proving ROI is another challenge in the absence of 'good enough' metrics for AI success. The TCS AI for Business Study reveals that 72% of business executives struggle to measure the success of their AI implementations effectively, making it challenging to secure funding for more advanced AI projects. TCS Anthropic Services on AWS enable enterprises to harness the power of GenAI to reimagine their business—strengthen their operations, create new business models, and solve critical business problems. The service brings together TCS' experience in delivering complex programs; the expertise of our rich pool of talent well-versed in data, AI, and cloud technologies; and AWS GenAI capabilities and Anthropic's Claude power. We help companies chart their AI roadmap and drive value across the enterprise, creating innovative, efficient solutions for sales, marketing, operations, customer experience, and more. We cover: Using the combined capabilities of TCS, AWS, and Anthropic, companies can: Get a competitive edge by leveraging our unmatched capabilities. When you work with us, you can make the most of our: TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption Accelerate Enterprise Generative AI Adoption with TCS AI WisdomNext™ Generative AI in Pharma: Revolutionizing Life Sciences Value Chains Reimagining Warranty Claims Management with Intelligent Technology Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

TCS Cognitive Document Processing on AWS

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industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Modernizing end-to-end document management on AWS Cloud to drive business agility and digital transformation You have these already downloaded We have sent you a copy of the report to your email again. Enterprises have a wealth of data but to fully harness their data, digitalizing end-to-end document life cycle management is a must. Most enterprises are striving to become data-driven organizations. They are leveraging next-generation technologies to manage vast amounts of data. However, mining valuable information from semi-structured and unstructured artifacts such as emails, images, business documents, and contracts remains a challenge. And there's a disproportionate amount of unstructured data that enterprises need to deal with, making it a daunting task to manage the end-to-end life cycle of such artifacts. When it comes to working with unstructured data, traditional tools and techniques fall short. Their efficiency and effectiveness are impacted as significant manual intervention is required, increasing the risks of errors. Enterprises need a superior alternative that is intelligent and can autonomously handle large volumes of unstructured artifacts generated by heterogeneous applications such as legacy and API embedding applications. TCS Cognitive Document Processing on AWS helps enterprises automate the document life cycle and extract valuable data from documents. Our solution offers robust and versatile document life cycle management capabilities to streamline and hyper-automate end-to-end document handling and data management. This covers document ingestion, classification, pre-processing, extraction, verification, validation, storage, indexing, search, and distribution. The solution leverages a serverless and scalable architecture that supports the processing of artifacts in different file formats—documents, spreadsheets, PDFs, images, email attachments, and more. With its template-agnostic framework, it effectively automates and streamlines data extraction from various input documents, eliminating the need for effort-intensive and error-prone manual intervention. The solution has robust data capture and processing capabilities for various business processes across industries such as banking and financial services, manufacturing, life sciences, and healthcare. Security is embedded in TCS Cognitive Document Processing on AWS. The solution offers information security by enabling touchless processes in a managed service delivery model. It is built on a

futuristic, foolproof, and multi-tiered architecture that allows the segregation of workloads and decoupling of tasks and provides adequate controls required to enforce industry best practices. In addition to capturing and processing data, it enables searchable content to drive faster insights. The solution encompasses end-to-end document life cycle management including: It employs machine learning techniques that offer ready-to-use pre-trained models of microservices-enabled architecture on AWS. The solution enables a high degree of straight-through processing with end-to-end digitalization of the document life cycle, including pre-processing of images of geometric transformation, correcting skew angles, and reducing blurriness. Its native algorithms and advanced optical character recognition (OCR) capabilities can handle complex scenarios such as extractions from poor-quality documents, various individual handwritings, character separation from the background, nonlinear character location, and connecting neighboring symbols. TCS Cognitive Document Processing on AWS can classify documents and automatically check for document duplication. It leverages AI/ML with a 'human in the loop' model and uses an intuitive user interface for handling OCR and intelligent character recognition (ICR) exceptions and for data rectification in case of anomaly where extraction fails or is inaccurate. It can be leveraged for complex document processing for scenarios such as insurance claims, know your client (KYC) checks, customer and employee onboarding, proof of delivery, sales orders, patient records, and immigration applications. The solution has the capability of generating letters, notices, forms, and bank checks for further processing. TCS Cognitive Document Processing on AWS is a versatile document management service offering that leverages home-grown machine learning algorithms and ready-to-use trained models to generate real-time dashboards with actionable insights and offer a 360-degree view of the document management process. Drive business agility, resilience, and superior customer experience. With TCS Cognitive Document Processing on AWS, enterprises can: Unlock the power of your enterprise data assets with scalability, flexibility, and security. From productivity accelerators and reusable frameworks to proven methodologies, enterprises can make huge gains from our differentiators including: TCS' AI and machine learning services for AWS Tap into AI, machine learning, and generative AI on AWS Cognitive automation products BASF makes big strides in digital farming with AWS Cloud Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height

How banks can adopt cloud to transform risk processes

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function to the cloud, however, they need a plan to manage complexity. They must have a coherent, long-term strategy to gain the full benefit of cloud-based risk applications—and to ensure that necessary resources will be available to develop and support new capabilities.   Cloud migration of risk tools comes with up-front costs. While most cloud providers offer incentives for multiyear commitments that can offset near-term migration expenses, there may be a significant bottom-line impact. Planning should reflect this: strategy setting is the right time to gain buy-in for the costs and the benefits. Cloud-based risk models are more accurate and help analysts, managers, and risk teams make faster, data-informed decisions. Competitive edge Be a front-runner with the cloud advantage. The financial world increasingly operates in real time. Risk-related processes and analytics need to reflect this. When payments are real-time or near real-time, for example, anti-money laundering (AML) and fraud detection processes need to happen faster. Cloud migration makes this possible. Cloud applications enable data analytics that can quickly aggregate exposure to counterparties, a capability that's vital during periods of market stress. Cloud computing infrastructure makes it possible to dynamically rerun scenarios on loan, trading, and investment portfolios. A private cloud is often the preferred option for risk and compliance functions. It helps companies meet their unique needs in terms of security and privacy without losing the efficiency, scalability, and agility that come with public cloud. Cloud-based infrastructure can be continuously fed real-time data that risk management software used by banks today cannot accommodate. Real-time data makes risk models more accurate and helps analysts, managers, and risk teams make faster, data-informed decisions.   With cloud migration, banks can tap into the high performance, scalable infrastructure needed to process huge volumes of data. Cloud-based grid computing can handle complex simulations and deep learning workloads. With virtually unlimited computing capacity, high performance computing, and high throughput networking, it becomes possible to better identify portfolio risks and hedging opportunities. Leveraging cloud Risk function use cases for cloud computing are many. Here are some: Regulatory reporting: Banks can improve the accuracy and resiliency of the reporting process while reducing staff time and compliance costs. On-demand reporting is made possible with the use of interactive dashboards and embedded analytics, while auditors and regulators can continuously monitor, control and report compliance status. Moreover, higher volumes of data can also be processed for regulatory reporting. As a result, banks can generate regulatory returns accurately and quickly. They can also reduce regulatory compliance costs and the time taken to process returns. Stress testing: Cloud infrastructure enables computationally complex modeling related to market movements, credit, or collateral events, enabling more dynamic risk management. A proposed loan, for instance, can be tested under stressful conditions in response to changes in the collateral prior to providing credit approval. Market risk managers and traders can churn larger volumes of data and gather insights to determine how to hedge their portfolios, allowing them to dynamically manage their risks in real time. Climate risk management: Geospatial data and machine learning on the cloud can help financial companies monitor, predict, and analyze risks of flood, wildfire, drought, extreme heat, wind, and other climate hazards that may affect a trading book or credit portfolio. Years of geospatial data can be quickly collected and analyzed, deriving actionable insights, and assessing

impacts on banks' portfolios. Moreover, changes in ecosystems, water availability and quality, soil health, and air pollution can be tracked, helping institutions deliver government mandates. Set your strategy Implement a broad, strategic framework.   While planning for adoption of cloud-based risk applications, organizations need to think long term. They should avoid the temptation to focus on short-term cost savings. While cost savings may help sell the effort internally, a broader strategy is needed to achieve the most important advantages of cloud migration. The three consistent features in any robust planning framework for cloud migration of risk processes and tools are: Strategy and sponsorship: Develop a clear, firm-wide strategy. Siloed adoption in parts of the organization will not tap the full range of benefits that can come from cloud migration. Leadership should survey the entire technology landscape, and recognize data and technology dependencies. Starting with use cases that are most likely to capture value from the cloud can help provide momentum and leverage for wider adoption in a particular area such as market risk assessment or fraud prevention. Prioritization: Identify risk domains that will benefit the most from cloud migration, and within each domain, determine the specific models, processes, and applications that should migrate to the cloud first. The use cases that are likely to capture value from cloud computing are processes that require heavy on-demand computing, speed, resiliency, and accuracy. Leaders of various risk functions across the organization need to talk to each other and know what other departments are doing to avoid costly errors and duplication of efforts. Resources and operating model: Risk functions may need to tap significant technical talent to develop, migrate, test, maintain, and improve risk models and applications on the cloud. While the benefits are going to justify the costs in the long term, short-term expenses put a premium on a carefully planned strategy. Risk leaders need to understand the impact on their cost base and should be able to clearly articulate how cloud migration will transform their baseline operating model. This long-term strategic framework for cloud-based risk applications and processes will enable banks and financial institutions to remain competitive. Improve resilience with TCS Financial Services and AWS Cloud European bank secures banking services, goes digital Life insurer adopts a zero-trust framework Financial services firm secures data transactions on cloud Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

How banks can adopt cloud to transform risk processes

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migration expenses, there may be a significant bottom-line impact. Planning should reflect this: strategy setting is the right time to gain buy-in for the costs and the benefits. Cloud-based risk models are more accurate and help analysts, managers, and risk teams make faster, data-informed decisions. Be a front-runner with the cloud advantage. The financial world increasingly operates in real time. Risk-related processes and analytics need to reflect this. When payments are real-time or near real-time, for example, anti-money laundering (AML) and fraud detection processes need to happen faster. Cloud migration makes this possible. Cloud applications enable data analytics that can quickly aggregate exposure to counterparties, a capability that's vital during periods of market stress. Cloud computing infrastructure makes it possible to dynamically rerun scenarios on loan, trading, and investment portfolios. A private cloud is often the preferred option for risk and compliance functions. It helps companies meet their unique needs in terms of security and privacy without losing the efficiency, scalability, and agility that come with public cloud. Cloud-based infrastructure can be continuously fed real-time data that risk management software used by banks today cannot accommodate. Real-time data makes risk models more accurate and helps analysts, managers, and risk teams make faster, data-informed decisions. With cloud migration, banks can tap into the high performance, scalable infrastructure needed to process huge volumes of data. Cloud-based grid computing can handle complex simulations and deep learning workloads. With virtually unlimited computing capacity, high performance computing, and high throughput networking, it becomes possible to better identify portfolio risks and hedging opportunities. Risk function use cases for cloud computing are many. Here are some: Regulatory reporting: Banks can improve the accuracy and resiliency of the reporting process while reducing staff time and compliance costs. On-demand reporting is made possible with the use of interactive dashboards and embedded analytics, while auditors and regulators can continuously monitor, control and report compliance status. Moreover, higher volumes of data can also be processed for regulatory reporting. As a result, banks can generate regulatory returns accurately and quickly. They can also reduce regulatory compliance costs and the time taken to process returns. Stress testing: Cloud infrastructure enables computationally complex modeling related to market movements, credit, or collateral events, enabling more dynamic risk management. A proposed loan, for instance, can be tested under stressful conditions in response to changes in the collateral prior to providing credit approval. Market risk managers and traders can churn larger volumes of data and gather insights to determine how to hedge their portfolios, allowing them to dynamically manage their risks in real time. Climate risk management: Geospatial data and machine learning on the cloud can help financial companies monitor, predict, and analyze risks of flood, wildfire, drought, extreme heat, wind, and other climate hazards that may affect a trading book or credit portfolio. Years of geospatial data can be quickly collected and analyzed, deriving actionable insights, and assessing impacts on banks' portfolios. Moreover, changes in ecosystems, water availability and quality, soil health, and air pollution can be tracked, helping institutions deliver government mandates. Implement a broad, strategic framework. While planning for adoption of cloud-based risk applications, organizations need to think long term. They should avoid the temptation to focus on short-term cost savings. While cost savings may help sell the effort

internally, a broader strategy is needed to achieve the most important advantages of cloud migration. The three consistent features in any robust planning framework for cloud migration of risk processes and tools are: Strategy and sponsorship: Develop a clear, firm-wide strategy. Siloed adoption in parts of the organization will not tap the full range of benefits that can come from cloud migration. Leadership should survey the entire technology landscape, and recognize data and technology dependencies. Starting with use cases that are most likely to capture value from the cloud can help provide momentum and leverage for wider adoption in a particular area such as market risk assessment or fraud prevention. Prioritization: Identify risk domains that will benefit the most from cloud migration, and within each domain, determine the specific models, processes, and applications that should migrate to the cloud first. The use cases that are likely to capture value from cloud computing are processes that require heavy on-demand computing, speed, resiliency, and accuracy. Leaders of various risk functions across the organization need to talk to each other and know what other departments are doing to avoid costly errors and duplication of efforts. Resources and operating model: Risk functions may need to tap significant technical talent to develop, migrate, test, maintain, and improve risk models and applications on the cloud. While the benefits are going to justify the costs in the long term, short-term expenses put a premium on a carefully planned strategy. Risk leaders need to understand the impact on their cost base and should be able to clearly articulate how cloud migration will transform their baseline operating model. This long-term strategic framework for cloud-based risk applications and processes will enable banks and financial institutions to remain competitive. Improve resilience with TCS Financial Services and AWS Cloud European bank secures banking services, goes digital Life insurer adopts a zero-trust framework Financial services firm secures data transactions on cloud Want to know how we can help you chart a path to cloud value with AWS? Theme Font size Line height =====================

Get an innovation edge with Microsoft Cloud

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Microsoft 365 Copilot Optimize business value from new IT with the right change management approach. Edge to cloud solutions to accelerate your cloud journey Build agile, cloud-native applications on Azure Leverage modern data techniques to enable quick decision-making. Drive agile, sustainable plant operations with composite AI. Business applications to drive process transformation Transform digital architecture with rapid application modernization. Drive real-time field services with IoT and cloud. Move your manufacturing operations to Microsoft Cloud. Digital workplace offerings to reimagine employee experience Extending Microsoft 365 Copilot capabilities TCS' accelerated adoption approach for Microsoft 365 Copilot Optimize business value from new IT with the right change management approach. 01. We are a Microsoft Partner with six partner designations. 02. We are skilled in the latest technologies and have earned 17 Microsoft specializations. Master your cloud transformation journey and bring possibilities to life. DuPont elevates employee experience with cloud How PODS improved productivity with cloud and automation Sainsbury's simplifies workflows, reduces spend Jurassic Fibre redefines workplace experience Forth Ports Crafts an Industry-first Solution TCS is leveraging its expansive domain knowledge and deep expertise on Microsoft Cloud to help clients innovate business models, enhance customer experience, and drive growth. SIVA GANESAN TCS is Microsoft's Partner of the Year Inner Circle for Business Applications Azure Expert Managed Services Partner A leading Microsoft Cloud Solutions Partner Want to get the innovation edge with cloud? Theme Font size Line height =====================

Taking the Quantum Leap, Now

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businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Easwara Prasad M Head, Azure Quantum and High-Performance Computing (HPC), TCS You have these already downloaded We have sent you a copy of the report to your email again. The future is quantum computing, and tech giants and niche startups are betting big on the technology. Leading players are working on multiple architectures to bring quantum computers to market. Meanwhile, enterprises are exploring ways of adopting quantum—they are analyzing concerns, including the point of departure from classical computing, upskilling their human resources, and identifying the right problems for quantum computing. Viable, commercial quantum computers may still be a few years away, but you don't have to wait to apply quantum now. With quantum-inspired optimization (QIO), you can overcome quantum challenges —some of the most complex business and real-world problems. QIO algorithms leverage the concept of quantum physics and can be run on classical computers. They help find the right solutions with greater accuracy as compared to classical computations. The key to implementing these algorithms lies in converting business challenges into mathematical problems to find suitable solutions. While that remains to be addressed, QIO algorithms can create a viable path to embark on your quantum computing journey. Choosing the right partners with the necessary capabilities is crucial to getting the quantum advantage. Value Realization with Distributed Cloud Multi-cloud, Hybrid, or Repatriation: The Future of Cloud Adoption Cloud 2.0: Empower Businesses with an Innovation-led Transformation Adopting FinOps Practices for a Successful Cloud Cost Management Walking the Path of Cloud Native for Enterprise Digital Transformation No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Building Self-governing ERPs, Intelligently

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Supply chain decarbonization: The missing link to net zero

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measure their true carbon footprint—and ultimately help find the missing link to a net-zero business ecosystem. First, the big picture. For our analysis, we looked at public data from a randomly selected set of 400 public companies with combined revenue of $10 trillion. The sample set for our analysis included companies from around the world, from industries including energy, aerospace, automotive, hi-tech, telecom, machinery manufacturing, life sciences, consumer goods, retail, travel, transportation, and hospitality. We assigned each company a score from 0 to 10 for their prowess in managing sustainability imperatives. This score was based on four dimensions: Shareholder value measured by the Dow Jones Sustainability Index Demonstrated climate resilience measured through initiatives that track and manage carbon emissions in real estate Supply chain resilience based on Scope 3 carbon emissions (which are defined as the result of activities from assets not owned or controlled by the reporting organization) Water resilience demonstrated through the ability to manage water-related risks and opportunities Titled 'Prowess in managing sustainability imperatives', the illustration shows how a randomly selected set of 400 public companies with combined revenue of $10 trillion were scored on a scale of 0 to 10 based on four dimensions: shareholder value measured by the Dow Jones Sustainability Index; demonstrated climate resilience measured through initiatives that track and manage carbon emissions in real estate; supply chain resilience based on Scope 3 carbon emissions; and water resilience demonstrated through the ability to manage water-related risks and opportunities. Expand Image We found that 51% of the companies we analyzed were actively participating in the Dow Jones Sustainability Index, and 52% publicized climate action. However, we also saw that a majority of companies are struggling to validate the data and insights from their supply chain emissions. From an industry perspective, we observed higher disclosure rates from manufacturing, energy, retail, and consumer goods companies. Many companies in these sectors want to position themselves as leaders and influencers in this space, so frameworks that advance their aspirations are seen as especially valuable. Only 16% of the companies we analyzed have publicly set science-based targets for operational carbon emissions. A smaller fraction of companies (11%) have committed to science-based targets for carbon reduction in supply chains. Our findings underpin the importance of engaging with an extended sustainability ecosystem that includes customers, suppliers, and other stakeholders. As an example, consider the carbon profile of a typical food supply chain. In our consulting experience with companies in the consumer goods space, we have observed that products and packaging account for more than 70% of carbon emissions (sometimes even more). Reimagining global supply chains can be a critical step in their journeys towards more sustainable practices. 16% of the companies we analyzed have publicly set science-based targets to reduce operational carbon emissions and only 11% have such targets for their supply chains. Consumers are seeking credible product labels to make informed decisions about the goods they buy. Studies conducted in the United Kingdom and Japan2 earlier this decade indicated that consumers desire sustainability labels in the products they buy. An early adopter of carbon labels was the food industry. For instance, Walker chips from PepsiCo and Tesco carried such labels, pioneering this much-needed trend in the larger industry ecosystem such as apparel and personal care through this decade. Dasher running shoes of Allbirds, Cocokind cosmetic

products, and more recently Oatly and Quorn3 are just some examples. The German discount chain Lidl has gone a step further, by piloting an ecological rating system in the year 2021 based on a traffic light concept4 to guide their customers to make sustainable decisions. To see how this seeming public desire for transparency translated into stock prices, we analyzed 95 companies in the retail and consumer goods industry to correlate their ESG scores in the Dow Jones Sustainability Index with share prices over a period of four years. The results were striking. An increase of 10% to 42% in the sustainability index since 2017 positively impacted the share price in the range of 15% to 233% in the same time period. Such trends show the strong influence that responsible businesses have on public perception, and by extension financial performance. For all of these ecosystem examples, supply chain transparency is key. This means making the data not only accessible, but also understandable. In reality, this transparency requires continuous engagement with suppliers—both to address their concerns and to build credibility by sharing best practices. And it's not only suppliers: It is important to bring together all stakeholders from across the business value chain. This collaboration is key to unlock the potential of green transitions and to mitigate environmental and social risks. Technology companies have a strategic role to play here, too, as data transformation partners for organizations. The edge-to-cloud data transition can improve disclosure, helping lead to zero-carbon, transparent supply chains. We see this carbon transition already happening in a big way in the energy, consumer goods, and retail segments. Companies are investing in emission accounting systems covering not only Scope 1 direct fugitive emissions and Scope 2 indirect emissions from electricity purchased, but also the Scope 3 supply chain emissions, which aren't owned or controlled by the reporting organization. From our sustainability data advisory work with clients around the world, we see that Scope 3 categories such as procurement, packaging, distribution, and logistics contribute to more than 80% emissions for the consumer goods businesses. We also see an increasing interest in companies in the energy, logistics, consumer goods, manufacturing, and food and apparel retail space wanting to address these complex challenges. Companies are looking to create "auditable" digital sustainability data accounting systems catering to an intricate supply chain that navigates geographies and markets around the world. Such demonstrated good-practice data-sharing measures must be replicated and scaled up through value-based business models. Original equipment manufacturers are also leading the way. Many of them are setting ambitious targets to work with their extended ecosystem of suppliers and vendors on data-sharing key attributes, such as climate risk, water stress, and social impact of their business around the world. Meanwhile, regulatory pressure is likely to increase. With emerging drivers such as the Task Force on Climate-Related Financial Disclosures (TCFD), carbon border adjustment mechanisms, and stringent supply chain laws in the European Union, companies will be forced to contribute to data-sharing platforms that help build safer, more responsible, and more resilient supply chains. Managing sustainability-related risks and opportunities requires core infrastructure and technology capabilities to be in place sooner than expected. Supply chain sustainability data is discrete, in siloes, and often maintained in spreadsheets—which makes auditability, accuracy, lineage, and governance challenging. With all the tools and point solutions available on sustainability, it may be tempting

to pick a quick win in the marketplace. However, companies need to take a more strategic path. Curating supply chain data can help companies gain competitive advantage by making use of insights and intelligence. Organizations also must develop a shared understanding of problems or requirements in Scope 3 supply chain visibility, and there's evident skill gap in doing this. They can address these gaps and shape their sustainability initiatives by working with experienced consulting services. Absence of data makes digitalization and digital transformation all the more critical. While it is essential for enterprises to work with their suppliers to embark on digitalization, it is also imperative that they modernize their core IT systems and infrastructure. A strong digital core provides the ability to deliver on sustainability principles and meet sustainability goals faster. The illustration shows how embracing modern data principles can help organizations achieve their sustainability goals. For instance, adopting an adaptable, open, and intelligent data infrastructure enabled via cloud can help build a sustainable IT infrastructure with cleaner options and added business value. Data governance, regulations and compliance can help centralize data intelligence in a foundational system of record to drive sustainability efforts. Similarly, data insights and process optimization through AI/ML can help minimize the environmental footprint of operational systems and processes; and sustainability analytics and data product life cycle management can create sustainable value chains. Expand Image This is where the cloud comes in. Cloud adoption provides organizations a big step towards net-zero emissions—beyond the obvious benefits of cost savings, operational efficiency, business agility, and innovations. As cloud adoption for digital data management continues to scale, various case studies demonstrate savings of life-cycle carbon emissions due to migration from on-premises data centers to cloud. For instance, research from Microsoft shows that for an organization with 10,000 users, the reduction can be between 70% and 90%5. To build competitive supply chain data, organizations must ingest data from suppliers, then aggregate, wrangle, augment, and curate it into a single source of truth. This information allows organizations to record emissions more accurately across the entire value chain and operations, to analyze and visualize emissions and environmental impact, and to eventually set goals for reducing the environmental footprint. As organizations progress on their technology and data maturity path, advanced technologies like AI, ML, and digital twins can be leveraged with appropriate, strategic sustainability solutions. The benefits of investments can be multifold—from cost savings and operational efficiency to business innovation to address end-to-end supply chain challenges. An increase of 10% to 42% in the sustainability index since 2017 positively impacted the share price in the range of 15% to 233% in the same time period. 1 https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature#:~:text=June%2028%2C%202022-,Highlights,based%20on%20NOAA%27 –EMEA IoT Partner Ecosystem, Microsoft Paul is EMEA lead for IoT Partner Ecosystem and Edge to Cloud at Microsoft. TCS Sustainability Solutions on Microsoft Cloud Win big on your sustainability KPIs with data and analytics Implementing Reinforcement Learning in Retail Supply Chains Parcel consolidation: The answer to last-mile logistics woes Want to get the innovation edge with cloud? Theme Font size Line height
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A New Beginning: Harnessing the Power of the Human Cloud

Making the shift to federated and self-governed borderless workplaces Related reading TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements.   Ashok Krish Global Head, Digital Workplace, TCS You have these already downloaded We have sent you a copy of the report to your email again. Every cloud has a silver lining; as does this global pandemic that refuses to relent even after months of wreaking havoc on human lives and livelihoods. Even as countries limp back to economic revival, most organizations that opted for remote working models to ensure business continuity during the early months of the COVID-19 crisis are yet to chalk out a foolproof strategy for a safe return to work. We however prefer to look at these 'dark times' through the lens of positivity and firmly believe this crisis to be an inflection point in the way businesses operate. Remote working will no longer be viewed as an operational alternative – and that too, a less preferred one – to office spaces. It will be the driving force behind a paradigm shift in the very nature of working – one that allows organizations to fully tap into the talent cloud, effectively harness the potential of new-age technologies, and offer equitable opportunities across geography and gender, all while lowering the

environmental footprint. Theme Font size Line height
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Location: Microsoft booth in Hall 17, Stand G06, Hannover Exhibition Center, Germany Display on site for these dates: April 17 to April 21, 2023 Visit us at the Microsoft booth We are all ready for the Hannover Messe taking place from April 17 to April 21, 2023, and we are hoping you will join us there. You will find us at the Microsoft booth. Drop in to learn how our digital manufacturing, supply chain, and sustainability solutions on Microsoft Cloud can help you reduce costs and carbon emissions. TCS is a Microsoft Partner of the Year. Together with Microsoft, we empower industrial transformation leveraging AI, cloud, and our rich portfolio of

proprietary solutions that can help companies build the factory of the future and create connected assets, operations, workforce, and supply chain. Our proprietary platforms and solutions can help you reimagine your operations and be ready for what's next. TCS Digital Manufacturing Platform – AI-enabled solution that helps build manufacturing excellence rapidly. TCS Clever Energy™ – Our award-winning energy and emission management solution helps commercial and industrial organizations become more sustainable, reduce energy consumption, and decrease carbon emissions. TCS Digital Transformation for SAP on Azure – Covers the end-to-end SAP transformation journey, including planning, design, deployment, management, and innovation on the cloud TCS Cognitive Plant Operations Adviser – 5G-enabled solution helps operators make informed decisions for optimized plant operations and maintenance. We look forward to meeting you and discussing how we can accelerate your growth and transformation journey. Driving excellence with Digital Manufacturing Platform Get an innovation edge with Microsoft Cloud TCS Cognitive Plant Operations Adviser TCS Sustainability Solutions on Microsoft Cloud Reimagine your future. =====================

Malaysia Airlines transforms IT services

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we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS overhauls IT infrastructure with flexible, scalable, and future-ready solution. You have these already downloaded We have sent you a copy of the report to your email again. Malaysia Airlines was under pressure to stem rising costs and improve customer service. Increased competition, low margins, spiraling costs, and demand fluctuations were major concerns at Malaysia Airlines. Lack of standardized IT systems, business users, or IT vendors took a toll on their overall efficiency, and often required their employees to spend time and effort on non-core activities. Operational silos prevented a holistic business view, and affected their ability to improve processes and serve internal customers. The airline also needed to migrate their legacy applications to new age technologies, such as migration of mail infrastructure to Microsoft cloud. TCS' proven track record with leading global airlines made us the logical partner choice. Our strong governance and service delivery model focused on outcomes, transparency, transformation, and innovation, and was designed to meet their future business needs. We leveraged our 5D approach—Define, Design, Develop, Demonstrate, and Deliver—and our proprietary tool, Netasthra, to provide an integrated service view of their IT operations through a unified interface and a single touch-point. This let us monitor their environment effectively, proactively reducing incidents. Netasthra's Enterprise Service Management tool provided live data on the status of any issues, tracked changes using a Change Management module, and generated reports on system capacity and utilization. TCS completed Malaysia Airlines' IT transformation three months ahead of schedule. We have been providing seamless customer service ever since, consistently achieving and exceeding our service targets. 01. We are a Microsoft Gold Partner with 18 Gold competencies 02. We have 17 Microsoft advanced specializations and the list is growing Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height ======================

DuPont enhances employee experience

Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy TCS and Microsoft Cloud: Driving Business Transformation Highlights In this article Challenge Solution Benefits Tangible value What made this happen Related reading Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Maintenance Manual efforts Support ticket Power Platform Services TCS Office 365 Engage Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS helps DuPont digitalize its HRM portfolio You have these already downloaded We have sent you a copy of the report to your email again. DuPont wanted to create a better experience for its employees. A simple thing like access to leave information can improve employee experience. But for DuPont, a multi industry specialty products company, its legacy human resources management (HRM) system made the year-end maintenance process lengthy and tiresome. Also, the application was not very user-friendly and required several manual steps. There were other challenges such as: The company realized that bringing in automation to improve efficiencies was the way forward. TCS helps DuPont make its HRM system more user-friendly. DuPont worked with experts from TCS' Microsoft Business Unit (MBU) and leveraged solutions such as Microsoft 365 and

Microsoft Power Platform to completely modernize its HRM portfolio. Our service also provided DuPont scalability with a platform that supports low code/no code technology. Here's how we helped solve DuPont's challenges: Modernized global leave system leads to happier employees and savings. By moving away from its legacy system to a modernized, user-friendly, and a more effective HRM portfolio, DuPont was able to make a significant difference to the lives of its employees. Since the change was introduced, leave system-related incidents have reduced to zero. reduction in year-end maintenance time reduction in manual efforts on managing bulk leave and profile record updates support ticket, reduced from 20 a month earlier 01. Power Platform Services TCS offering on Microsoft Power platform seeks to accelerate customers' journey on Low Code/No Code adoption and enterprise digital transformation. 02. TCS Office 365 Engage The evolution of technology has driven the need for new ways of working. TCS' offering helps businesses migrate to Office 365 and improve people management. TCS FinOps Transformation for Google Cloud TCS SDLC Assistant: A Perfect Companion for Developers, Delivery Teams TCS Mainframe Modernization on Google Cloud TCS Contact Center AI on Google Cloud Want to get the innovation edge with cloud? Theme Font size Line height =====================

TCS and Microsoft - Partnering for business success

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create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS and Microsoft Cloud / Case Study Delivering greater business agility to organizations around the globe You have these already downloaded We have sent you a copy of the report to your email again. In this video, leaders from TCS and Microsoft discuss the need to reimagine customer experience and enhance employee empowerment. The COVID-19 pandemic has put digital transformation on the priority list of enterprises, and they are now seeking effective ways to modernize legacy systems that are holding back business initiatives and innovations. The leaders discuss the various solutions in Microsoft Dynamics 365, which unify consumer data and provide opportunities for innovation, better mobile experiences, enhance omnichannel platforms, increase sales and conversion rates, attract new business and boost loyalty among existing customers.   Scaling Success: Bringing Microsoft 365 Copilot to Enterprises How PODS improved productivity with cloud and IT automation Accelerating Data Transformation Using Data Analytics and AI Supply Chain Decarbonization: The Missing Link to Net-zero Want to get the innovation edge with cloud? =====================

Jurassic Fibre Redefines Workplace Experience

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the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. SUCCESS STORY TCS helps Jurassic Fibre reimagine human capital management with next-gen cloud platform You have these already downloaded We have sent you a copy of the report to your email again. Stepping into the 5G age, Jurassic Fibre was looking to transform its end-to-end employee processes and revamp work culture. The enterprise explored options in the cloud domain that would add agility to its HR infrastructure and move it from a process-centric to an employee experience-based organization. What Jurassic Fibre needed was a digital solution that sources employee data and drives transformation in physical, digital, and cultural aspects of work. This called for a cloud platform that acts as a single source of truth for all employee information and keeps pace with business expansion.   Working as a strategic partner with Jurassic Fibre, TCS leveraged its human capital management (HCM) experience and technology leadership to conduct a thorough analysis for each HR function and draw a workforce transformation roadmap for the customer. The TCS team shortlisted and helped prioritize some quick-win opportunities for Jurassic Fibre and recommended standardizations and personalization for better execution of HCM functions. Given Jurassic Fibre's heavy investment into Microsoft cloud platforms, Microsoft Dynamics 365 HR was selected for this workforce transformation program.   "Working with TCS on our digital journey was an enriching experience." -- Catherine Reed, HR & Admin Director, Jurassic Fibre   TCS conducted a detailed gap fit analysis on Microsoft Dynamics Cloud to ensure optimal localized design for Jurassic Fibre teams in the UK and Jamaica and imparted training to the HR teams to help them adapt better to the new HR solution. Delivering continuous business value, TCS designed a minimum viable product for Jurassic Fibre with rapid deployment within 30 days. With design thinking and alignment to business goals, TCS helped Jurassic Fibre switch to employee-centric processes and make better data-driven decisions.   Striking a right balance between automation and personalization, TCS deployed a cloud HR platform that brought together disparate employee processes at Jurassic Fibre and enabled use of data analytics for visibility on employee demographics. 5G-driven Modern Compute at the Edge How Cloud Solutions Can Transform Travel and Hospitality Industry How Real-world Evidence is Transforming Healthcare 3 keys for resilience in travel and hospitality Theme Font size Line height =====================

TCS Gives Blackhawk Network Edge with Microsoft Cloud

Services TCS and Microsoft Cloud: Driving Business Transformation Related reading Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS and Microsoft Cloud / Case Study You have these already downloaded We have sent you a copy of the report to your email again. Blackhawk Network's VP, business transformation, Cara Renfroe, joins TCS' Rakesh Kumar, BFSI unit head, and Nilendu Pattanaik, global head of Microsoft BizApps Practice, to explain how TCS transformed the gift card company's customer engagement and global operations on Microsoft Dynamics 365 cloud. Blackhawk Network is shaping the future of global branded payments—from QR code payment solutions and retail gift card programs to tailored incentives and reward programs. The Silicon Valley-based company has been expanding its global footprint through numerous creative acquisitions. While each brought a wealth of benefits, the acquired companies' existing processes and platforms challenged Blackhawk Network's ability to optimize and scale its go-to-market strategy. To address this issue, Blackhawk turned to TCS. With its extensive cloud experience, TCS transformed Blackhawk's ERP and CRM systems in tandem, enabling the sales of one set of solutions and services to

a global customer base at scale. TCS' Microsoft cloud transformation program helped Blackhawk Network: TCS has enabled business transformation and process standardization that has allowed Blackhawk Network to globally unify its operations end-to-end and go-to-market strategy, which ultimately delivers a more seamless experience for our customers, partners, merchants, and employees worldwide. CARA RENFROE TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to get the innovation edge with cloud? ======================

Winning with future-ready ERP platform

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TCS leads process harmonization at Gilbarco Veeder-Root with new cloud-based ERP platform. You have these already downloaded We have sent you a copy of the report to your email again.   Gilbarco Veeder-Root (GVR), a leading fueling solutions and EV charger manufacturer, wanted to address its dependence on third-party data service provider for reporting and financial accounting that was impacting productivity. Looking to empower its employees with new processes and tools, the company needed to embark on digital transformation and move to a future-ready platform. It planned a cloud solution that would run all operations, such as finance, sales, and accounting, in an integrated mode with improved systematic processes, enhanced checks and balances, and better revenue assurance.   Working as a strategic partner with Gilbarco Veeder-Root, TCS developed a deep understanding of its investments into technology landscape and recommended a solution based on Microsoft Dynamics 365 Business Central as an ERP platform. TCS adopted an accelerated roll out approach and implemented a cloud solution harmonizing core finance processes across GVR. The Microsoft ERP solution deployed by the TCS team brought about the required digital transformation at the enterprises and enhanced financial visibility. Besides introducing automation in accounting, Microsoft Dynamics 365 Business Central helped GVR make informed decisions using connected data across finance and accounting, sales, purchasing, and inventory. The new ERP platform ensured revenue assurance, accelerated sales process, and brought about a distinct acceleration in financial reporting with accurate and streamlined reports during month-end finance reconciliation. The TCS team also identified other avenues to optimize productivity and efficiencies and planned subsequent future deployments for GVR in the APAC region, Western Europe, and the Baltics.   "This was by far the smoothest ERP go-live project I have ever seen." - Martina Schoultz, CIO, Gilbarco Veeder-Root Global   TCS deployed a Microsoft ERP platform for GVR that introduced automated workflows and created a centralized location for easy access to data for communication and decision making. Accuracy on contract revenues Reduction in report generation time Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation Theme Font size Line height
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How PODS improved productivity with cloud and automation

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operational environment. Furthermore, TCS automated the creation of infrastructure including development, testing, and integration environments by moving to infrastructure as a code (IaC). This worked as a starting point for PODS to deploy workloads and launch applications dynamically. Through a DevOps platform that supports IaC, we enabled automated build and deployment of infrastructure without the need for manual provisioning, and standardized DevOps cloud deployment and automation with Terraform and PowerShell. The result is that today PODS can rapidly build custom workloads on cloud and deliver projects at speed. PODS could now put greater focus on redesigning the experience around moving and storage for its customers. By migrating its systems and business applications to a modern, automated, and reliable platform on cloud, PODS gained the agility to innovate and remove complexities around moving, along with several other advantages: Annual savings from optimized development, testing, and integration environments. Faster delivery of new projects as workloads could be created in just a few days, sometimes just hours. Higher scalability, agility, and reliability of applications with the Azure Cloud platform. 50% reduction in running costs of test environments in Azure with the implementation of FinOps best practices. Improved productivity through 80% reduction in efforts for environment provisioning and actionable alerts for business-critical applications. Faster, simpler, and consistent code deployment with better controls and monitoring. Smarter decision making for effective project delivery, aided by documentation and analysis of third-party dependencies during the migration assessment. Annual savings from optimized development, testing, and integration environments. 50% reduction in costs of test environments with FinOps and migration to Azure. Two-pronged Approach for Effective Cloud Operations Comprehensive Data Protection Strategy – A Strategic Approach TCS Azure Application Modernization Services to Drive Innovation TCS advanced analytics and decision science on Microsoft Azure Want to get the innovation edge with cloud? Theme Font size Line height =====================

US-based utilities company improves business processes

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over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS helps the company adopt generative AI-powered Microsoft 365 Copilot to improve efficiencies and business processes across the value chain. You have these already downloaded We have sent you a copy of the report to your email again. Turning the GenAI potential into reality A leading US electric utilities company, committed to providing reliable, affordable, and clean energy to its diverse customer base, wanted to explore the possibilities of transforming work and business with generative AI (GenAI). Reliability and resilience (ensuring the electrical grid is robust and resilient to natural disasters and cyber threats); sustainability (transitioning to renewable energy sources and reducing greenhouse gas emissions to combat climate change); and customer-centricity (providing innovative solutions and services that meet the evolving needs of customers) are core to the company's strategic initiatives. So the company decided to tap artificial intelligence (AI) and GenAI to build a smarter grid, enhance its predictive maintenance capabilities, optimize energy distribution, improve customer service and operational efficiency, and reduce costs. Considering the high use of Microsoft 365 across the organization, it was keen to adopt Microsoft 365 Copilot, a GenAI assistant, to enhance AI adoption across its diverse workforce and improve existing business processes and workflows. To realize this AI-driven transformation, the market leader collaborated with TCS to evaluate the potential impact of emerging GenAI technologies on the company's value chain and identify high-value use cases, proofs of concepts (POCs), and pilots using Microsoft 365 Copilot. TCS was the company's partner of choice to drive its generative AI initiative with M365 Copilot as the solution of choice. A strategic partner of the company for over a decade, TCS has been instrumental in driving its digital transformation and operational excellence journey. Having established centers of excellence for cloud, automation, and DevOps and deployed multiple cutting-edge digital solutions across their Transmission and Distribution, Customer Service, Field Engineering and Enterprise departments, TCS was the ideal partner as it sought to chart a GenAI roadmap. Our contextual understanding of the company's core business processes, expertise in applying AI and GenAI technologies across industries, and robust AI and GenAI capabilities tailored for utilities made us a clear winner. TCS worked with the company to assess

the organizational readiness for Microsoft Copilot, helped it understand the complexities involved, and created a comprehensive strategy for a successful rollout of the solution across the enterprise. In collaboration with key stakeholders, TCS: Convinced by the strong ROI indicators and compelling business case, the customer has invested in 1,400 additional Copilot licenses. TCS is in the process of rolling out Copilot to these new users spread across 10 operational units. Enabling the transition to the AI-assisted way of working Building a GenAI culture among its people and making the transition to GenAI easy was an integral part of the initiative at the utility company. The pilot program was focused on enablement and use case exploration. As part of this, we conducted Copilot awareness workshops, exploration hackathons, and workshops on writing effective prompts. Throughout, the program focused on the practical application of Microsoft 365 Copilot capabilities within the organizational construct and enabling users to work smarter. To drive engagement, we established the TCS Engage-AI Office Hub. The hub served as a one-stop place for business use case submissions and for capturing high-value prompts and responses. It also recorded user-reported efficiency gains. Thereafter, each use case was assigned an efficiency score leveraging the responsible AI evaluation model. TCS helped build and manage a Champions Community through engagement activities such as Viva Engage, which recognized power users and curated meta prompts. Paving the path to accelerated value from GenAI Through the M365 Copilot program, the electric utilities company could address critical challenges, transform its operations, and unlock new opportunities. It has enhanced not just operational excellence, but also paved the way for a more sustainable and innovative future. The engagement has helped the company to: 18-20% 1,400+ efficiency gains achieved by integrating Copilot into workflows. additional users identified for scaling up GenAI across the enterprise. TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces TCS Azure Application Modernization Services to Drive Innovation TCS Generative AI Enterprise Adoption on Azure Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height
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TCS Connected Consumer and Operations

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automated alerts. Customer-first management: Improve customer interactions by taking TCS' design-for-experience approach for personalized engagements across preferred channels. Transparency: Make it easy for environment-conscious users to keep a tab on their usage through real-time information.   Stay close to customers with real-time monitoring and a 360-degree view of customer profiles. Increase first-time resolution of tickets by up to 90%. Reduce the volume of abortive field visits by 10% through a more effective scheduling and dispatching of field staff. Reduce carbon emissions by 5% and promote a sustainable environment for your customers. Strengthen security with advanced authentication.   Stay connected with customers through 'get local' and community engagements. Set yourself apart with our key differentiators. When you work with us, you can make the most of our key differentiators and unmatched partnership to deliver a superior consumer experience and power your growth. With dedicated labs, joint offerings and event sponsorship, and strategic go to market and product development together, our decades-long partnership with Microsoft enables us to co-create product expertise and build on our advanced knowledge of product launches to help our clients stay ahead. A strategic Global SI and Microsoft Gold Certified Partner, TCS is also a part of the invite-only Inner Circle for Microsoft Business Applications for 2020/21 and 2021/2022. TCS has also been recognized as the Microsoft US Partner for Field Services. Our trained consultants and Microsoft-certified professionals ensure the development of customized solutions on Microsoft technologies. TCS Connected Consumer and Operations is based on the tenets of sustainability, simplification, and customer experience. Data Platform Modernization and Migration to Azure Synapse Transform Enterprise Data Governance on Azure Purview Accelerating Data Transformation Using Data Analytics and AI Leveraging Conversational AI and Virtual Assistant to Improve CX Want to get the innovation edge with cloud? Theme Font size Line height =====================

TCS Cognitive Plant Operations Adviser

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TCS' Cognitive Plant Operations Adviser combines knowledge, Physics and data sciences for composite AI. It also includes reasoning with knowledge engineering, and advanced AI/ML. Maximize digitalization impact with timely operator recommendations. With TCS Cognitive Plant Operations Adviser, plant operators can ensure real or near real-time plant monitoring. They can also identify deviations from expected behavior, alert operators about potential problems, and provide recommendations to act on—and prevent—possible failures. Our solution can help you: Optimize manufacturing operations in real time to improve flexibility and availability Reduce operations and maintenance cost and improve plant resilience Ensure compliance with sustainability regulations Enhance plant safety and reduce operations risk Enable localization of impending issues with impact and advice, enhancing decision-making Leverage our technology and domain expertise to build and deploy next-gen solutions. With TCS Cognitive Plant Operations Adviser, you can capture domain knowledge of varied forms such as SOPs, engineering drawings, incidents logs, and expert inputs using real-time ontology and reasoning. It provides contextual guidance to operators and helps them make more informed and unbiased decisions. For this, it combines the power of real-time data with historical knowledge leveraged in resolving similar incidents in the past. You can also create a comprehensive repository of configurable machine learning and deep learning algorithms to develop analytical solutions for automated monitoring, diagnosis, optimization, and self-tuning. We help you reimagine plant operations with a cloud and AI-first approach. Our long-standing and deep partnership with Microsoft helps clients adopt TCS Cognitive Plant Operations Adviser faster. We are also a proud winner of Microsoft 2022 Partner of the Year Award for Global SI Advisory and Digital Transformation. Scaling Success: Bringing Microsoft 365 Copilot to Enterprises How PODS improved productivity with cloud and IT automation Accelerating Data Transformation Using Data Analytics and AI Supply Chain Decarbonization: The Missing Link to Net-zero Want to get the innovation edge with cloud? Theme Font size Line height =====================

Mainframe migration and modernization on Azure

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TCS Advanced analytics and decision science on Azure

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include real-time operational analytics, personalized experience, advanced analytics using ML, performance analytics and forecasting. We provide a range of solutions and services, including: Gain better insights and become a more future-ready business. When you work with us, you can leverage: Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation Want to get the innovation edge with cloud? Theme Font size Line height

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and information sharing platform that can facilitate effective information dissemination and interaction to avoid conflicts and increase productivity. Right knowledge at the right place and at the right time can work wonders while the opposite forces employees to look at multiple knowledge sources leading to an information overload. Management strategies are also not properly conveyed to the frontline workers causing disruption in automation. TCS Knowledge Experiences for Microsoft 365 helps businesses ensure improved information sharing and workforce management. The service allows them to simplify the information by leveraging analytics and a contextualized information system to organize on-demand information. It comes with the following key features: Make the most of our service to: Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation Want to get the innovation edge with cloud? Theme Font size Line height

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TCS Office 365 Engage

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and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Drive collaboration and employee engagement You have these already downloaded We have sent you a copy of the report to your email again. Organizations transitioning to a new digital infrastructure require a platform that can facilitate easy adoption and integration of technology with the employee's way of working. The lack of a change management system impacts the business functions and decreases employee productivity. Further, the unavailability of appropriate adoption metrics, feedback, and dashboards makes it difficult to make well-informed decisions or calculate the ROI. TCS Office 365 Engage facilitates the adoption of new technological infrastructure and enhances collaboration and people management. It allows employees to understand their usage and performance through customized micro-content based on role, unit, and geography. With custom engagement campaigns and end-to-end change management approach, TCS Office 365 Engage helps remove barriers in users' tech-savviness through: With TCS Office 365 Engage, we help organizations optimize Office 365 advantages to boost overall productivity. We enables businesses to: Data Platform Modernization and Migration to Azure Synapse Transform Enterprise Data Governance on Azure Purview Accelerating Data Transformation Using Data Analytics and AI Leveraging Conversational AI and Virtual Assistant to Improve CX Want to get the innovation edge with cloud? Theme Font size Line height ======================

TCS Sustainability Solutions on Microsoft Cloud

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believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Building sustainable enterprises of the future You have these already downloaded We have sent you a copy of the report to your email again. We believe that by working together as true partners we can deliver the most sustainable and successful results. Sustainability is no longer a choice for businesses. As resources become scarcer, companies and investors are looking to improve environment, social, and governance (ESG) performance. Environment-conscious customers and tighter government and industry regulations also make it an imperative for enterprises to embrace sustainability. At TCS, we are committed to empowering businesses to meet their sustainability challenges. Through our sustainability services, we help enterprises become more resilient, adaptable, and make sustainable choices for a better tomorrow. And cloud is key to how we embed sustainability in businesses. Reach your net-zero goals with TCS and Microsoft Cloud. Our sustainability solutions on Microsoft Cloud help organizations across industries to create net-zero emission pathways and meet their sustainability goals. We empower them to become sustainable businesses with the agility to innovate and create products and services that are kinder to the planet. Our solutions include: Drive sustainability across your value chains. When you work with us, you can drive sustainability across your business and value chains. Not just that, you can drive sustainable living and consumption by providing insights into energy usage, and helping reduce waste and emissions. Together, we can: Manage climate change and preserve natural resources. Embed circularity in your products and services. Build an inclusive, regenerative, and thriving society. Measure, monitor, and de-risk sustainability investments. Drive transparency among all stakeholders. A case in point is the way we helped smaller renewable energy providers to compete in the Australian energy market. Through a big data and AI-infused metering data management solution built on Azure, TCS and Microsoft enabled AEMO, Australia's energy market operator, to move from a 30-minute settlement of buying and selling of energy to five-minute settlements (5MS). Our work has made a significant impact for on both energy consumers and the market with: TCS is a proven sustainability partner for real change. We leverage our deep partnership with Microsoft and our contextual knowledge of industries and client priorities to help you meet your sustainability goals. With more than 200 sustainability offerings, we can help you meet your most ambitious sustainability goals. Our 30,000 Microsoft-certified associates with expertise in AI, ML, IoT, digital twin, and advanced analytics help make the journey seamless for you. Our industry-aligned approach to sustainability helps you realize faster results and see

greater efficiency and resilience. TCS is one of the largest Microsoft Cloud for Sustainability partners, trusted with helping clients accelerate their sustainability journey. We believe the only way to tackle the sustainability imperative is together—hand in hand with our partners, clients, and the communities in which we work and live. As a Microsoft Cloud for Sustainability partner, we help enterprises achieve their most ambitious sustainability goals as they seek to gain new insights into energy usage and reduce waste and emissions to achieve their net-zero goals. K. ANANTH KRISHNAN Data Platform Modernization and Migration to Azure Synapse Transform Enterprise Data Governance on Azure Purview Accelerating Data Transformation Using Data Analytics and AI Leveraging Conversational AI and Virtual Assistant to Improve CX Want to get the innovation edge with cloud? Theme Font size Line height =====================

Drive real-time field service with TCS NextGen Field Services

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TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Telecom, utility, and energy service providers are looking to leverage emerging technologies to reduce costs, increase resilience, and boost process efficiency and information accuracy. There is a need to ensure a hyperpersonalized experience that optimizes their customer's journey. Enterprises are looking to formulate new processes and techniques on time-based, self-learning and predictive models to attain a real-time field view. TCS NextGen Field Services on Microsoft empowers field service staff through remote assistance for proactive service through IoT. Equipped with features such as asset location, remote detection, automated scheduling recommendations, resource management, and service level agreements, it provides advance forecast of resource demands and ensures first-time fix by equipping technicians and service managers with the right tools and information to resolve an issue. Key features include: TCS NextGen Field Services on Microsoft allows enterprises to: Scaling Success: Bringing Microsoft 365 Copilot to Enterprises How PODS improved productivity with cloud and IT automation Accelerating Data Transformation Using Data Analytics and AI Supply Chain Decarbonization: The Missing Link to Net-zero Want to get the innovation edge with cloud? Theme Font size Line height =====================

Power Platform Services

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TCS Azure Application Modernization Services with AI Assist

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business value. For instance, retailers have shown internal supply chain improvements by 30% and banks have realized 20% efficiency improvement using cloud-native services. A partnership with TCS can help enterprises leverage key differentiators that include: Future-ready tools and accelerators such as TCS Mastercraft™ TransformPlus, tcs modernize.right>>, TCS Modernization Propeller, and TCS Containerization accelerators. Attractive catalog-based pricing model, bringing transparency and offering consumption-based pricing for customers. TCS' contextual knowledge and reference architectures for transforming business functions into digital applications and APIs. Pool of skilled consultants specialized in prompt engineering to design right prompts in the natural language and subsequently review, refine, and optimize codes that generative AI tools generate. Data Platform Modernization and Migration to Azure Synapse Transform Enterprise Data Governance on Azure Purview Accelerating Data Transformation Using Data Analytics and AI Leveraging Conversational AI and Virtual Assistant to Improve CX Want to get the innovation edge with cloud? Theme Font size Line height =====================

Make collaboration easy with Smart Meetings

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analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Organizations are looking to improve employees' communication experience, unify their communication strategy, transform day-to-day business collaborations, and reduce the costs of communication. The way we work has changed. Businesses are becoming increasingly mobile, global, and social, and more number of people are working from home than ever before. They are looking for platforms that connect people and help them collaborate and be efficient no matter where they are. Legacy PBX telephony solutions do not meet work-from-home requirements as they require extra investment toward network costs and performance of legacy systems. Further, with major regulations and complex bandwidth provisioning, it is difficult to ensure business continuity. Offered in partnership with Tata Communications, Smart Meetings uses Microsoft Teams to keep employees connected via a single platform and help increase productivity. It allows integrated business apps and integrated telephony services within Microsoft Teams, enabling users to connect to any phone number and meeting room devices to join Teams meetings easily. Smart Meetings enables full automation of meetings with Microsoft Teams as the primary collaboration platform to increase employee productivity and reduce costs. Smart Meetings automates the full cycle of calling and meetings by enabling Microsoft Teams as the primary collaboration platform. With capabilities such as messaging, voice, and video meetings and audio calls, it facilitates collaboration globally. We make this possible right from the outset-from assessment and enablement to integration and adoption. Not just that, we provide complete life-cycle support, maximizing employee productivity and RoI. Key features: An illustration showing the many ways in which Smart Meetings makes collaboration easier. With features for consulting and assessment, adoption-led rollouts, meeting room experience enhancements, enterprise voice enablement, integration of apps, and managed support, the platform helps transform day-to-day business collaborations and improve employee experiences while reducing costs. With Smart Meetings, you can drive collaboration, innovation, and get more out your meetings. Employee productivity: Reduce additional network requirements by shifting to Microsoft Teams with minimal risk and maintain employee productivity by leveraging unified worklists. High quality service and support: Deliver persona-based, zero-touch services using next-gen technologies and our 24*7*365 shared and dedicated support models. Cost Savings: Optimize existing investments by controlling usage and enabling an average 30% savings over conventional primary rate interface (PRIs. A partnership with TCS helps you take advantage of our key differentiators. Global leader: We have more than 2,500 certified SMEs with experience in successfully migrating over one million users to Microsoft 365. Our partner Tata Communications works with over 1,600 carriers in more than 110 countries, and manage almost 26% of total Internet routes globally, which makes it the number one international voice carrier. Decades of industry experience: We, along with Tata Communications, have a wide range of experience in successfully managing SDWAN networks across more than 50

enterprises and 3,000 sites. Leveraging 4,000 Smart Meetings and enterprise voice experts in five service contact centers, our partner proactively monitor 95% of customer incidents worldwide on average, ensuring smooth adoption of services and additional support post-adoption. Strategic partnership with Microsoft: Being a Microsoft Premier Outsourcing and Microsoft Gold Certified partner, we get priority support from Microsoft. Also, TCS is a preferred member of the Microsoft 365 Content Services Partner Program and a launch partner for SharePoint Syntex. Data Platform Modernization and Migration to Azure Synapse Transform Enterprise Data Governance on Azure Purview Accelerating Data Transformation Using Data Analytics and AI Leveraging Conversational AI and Virtual Assistant to Improve CX Want to get the innovation edge with cloud? Theme Font size Line height =====================

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downloaded We have sent you a copy of the report to your email again. On-premise applications are a costly and restrictive option for enterprises. However, moving to the cloud is a complex and time-consuming journey because businesses need to align the migration to cloud to their business strategy and equip the workforce with the skills needed for a fast and efficient migration. Further, poor planning and understanding of the existing application estate can lead to the use of wrong migration technology. TCS facilitates the migration of on-premise IT applications to hybrid cloud with Microsoft Azure by supporting a streamlined factory-based migration. Backed by its Machine First Delivery Model (MFDM™), along with proprietary accelerators, frameworks, micro-services, and pre-built automated lines for a risk-free migration, TCS assesses the on-premise applications and recommends a design that aligns with the organization's migration strategy. TCS offers the following services: TCS facilitates the migration of on-premise IT applications to hybrid cloud with Microsoft Azure via a streamlined factory-based migration TCS' services provide the following benefits to organizations: Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height

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we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Seamless transition using centralized migration approach and standardized tools You have these already downloaded We have sent you a copy of the report to your email again. Organizations looking to adopt innovative digital technologies face limitations due to their legacy systems and substantial opportunity cost. The lack of accessibility and minimal visibility of site usage make them vulnerable to security breaches. Enterprises need a business transformation solution that can help them migrate, upgrade or consolidate their legacy platforms to Microsoft's latest offerings. TCS' Microsoft 365 implementation and migration support allows enterprises to seamlessly upgrade legacy systems to Office 365, driving business transformation. Equipped with a unique migration approach and standardized tools to manage, monitor, collaborate and track Microsoft migration and implementation engagement status, TCS' offering reduces manual intervention significantly. The solution enhances customer experience and employee productivity through: With TCS' Microsoft 365 implementation and migration support, enterprises can: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Migration of Servers and Database to Azure

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businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Building cloud-native Windows and SQL servers and open-source database on Azure You have these already downloaded We have sent you a copy of the report to your email again. TCS enables smooth adoption of cloud-native services in Azure by migrating enterprises on-premise servers. TCS' in-house tools, skills and offerings, enterprises can improve operational efficiency with standardized provisioning of cloud services. TCS has certified Azure experts with extensive domain knowledge to support the migration of servers with well-defined cloud migration factory strategies.   While Microsoft's Windows Server and SQL Server have been the operating system and platform of choice for many enterprises for on-premise data centers, the cloud is increasingly becoming a target landscape. With support for Windows Server and SQL Server 2008 / 2008 R2 coming to an end, enterprises may face security risks and continuity challenges, and therefore need to modernize their operations with cloud technologies. However, they have to choose from a plethora of options. Some of the key challenges faced by enterprises today are: analyzing existing landscape (Windows Server, Linux Server, SQL Server and Open-Source database environment), moving workloads and applications to Azure, and maintaining applications that are not ready to move to Azure on-premise by upgrading them to the latest version of Windows Server and SQL Server.   TCS helps build cloud-native Window Server and SQL server 2008/R2, Linux Server and open-source database in Azure by migrating enterprise servers and databases. TCS enables smooth adoption of cloud-native services in Azure by migrating enterprises on-premise servers using cloud migration factory model approach with the following solutions: Windows Servers Linux Servers SQL Servers Open-source database   With TCS' in-house tools, skills and offerings, enterprises can: TCS brings several advantages to the table, such as: Need for Personalization in Hospitality Industry to Improve CX MaaS Solution to Drive Sustainable Urban Mobility & Improve CX TCS helps Rail Delivery Group build a platform to monetize data Integrated Risk Appetite and Financial Crime Risk Controls Assessment No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Industry Data Governance Service on Azure Purview

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your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Application Integration Services on Microsoft Azure

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and Event Grid, TCS' offering helps in efficient migration, modernization and automated deployment, and configuration management. It offers the following features: With TCS Application Integration Services on Microsoft Azure, organizations can enjoy the following benefits: Working with TCS provides a range of opportunities to enterprises: Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height
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Microsoft Azure Virtual Desktop Implementation

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your email again. Azure Virtual Desktop (AVD) enables remote and hybrid workplaces with next-gen virtualization. Enterprises are embracing cloud and virtualization to enable secure hybrid remote workplaces for employees. The key factors driving this change are workplace flexibility, operational efficiency and a secure and seamless individual experience for business agility. However, leveraging Azure Virtual Desktop (AVD) service can be a daunting task for enterprises to decode and swiftly adopt while working with complex legacy systems. TCS leverages proven tools and methodologies to implement Azure Virtual Desktop (AVD) on a Azure -based virtualization technology, which offers virtualized Windows Desktop, Windows Server and Application services, powered by Microsoft 365 Suite. This solution includes the following stages: Assess: Existing applications and desktops are assessed for load characterization, automatic modeling selection, and capex and opex considerations Design: Target state is designed with virtual apps and desktops, focusing on Azure landing zones, monitoring, profile, security, storage, networks, service design and disaster recovery plan Develop: End-to-end project plan along with design documentation, resource requirements, and change management strategies Deploy: Azure Infra with dedicated TCS application packaging services line to provide application fitment for AVD and multi-session and hybrid support on legacy infra for leftover applications Migrate: Apps, files and data migrated to the new environment with required security and disaster recovery controls Manage and optimize: Continuous monitoring and optimization using TCS Cloud ExponenceTM and TCS CognixTM TCS is a Microsoft Gold Partner, providing focused investments with in-house tools and partner solutions under a single portfolio. faster time-to-market cost savings compared to an on-premise setup with managed capex and opex availability from any device, anywhere, anytime time savings on overall patching efforts and extended Windows life cycle support 01. Factory-based approach A shared service-based delivery model to assess, transform and manage AVD services which can be scaled up or down to deliver agreed business KPIs and XLAs, track investments and measure business outcomes 02. Flexible pricing model Catalog-based pricing with a pay-as-you-go model to help enterprises de-risk from making capex investments 03. User personification Best-in-class individual experience and adoption analytics to maximize cloud virtualization benefits 04. Leader in digital workplace TCS has been recognized as a leader in digital workplace by Gartner in their Magic Quadrant for Managed Workplace Services for 2021 05. Strategic alliances Strategic partnership with Microsoft and certified Azure experts with extensive virtualization experience to prepare enterprise infrastructure for cloud adoption Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Powering autonomous systems with Project Bonsai

Highlights In this article Overview Solution Benefits The TCS advantage Related reading Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Autonomy is the next frontier in industrial control systems. Traditional control systems reach their limits when dealing with highly variable scenarios or when they have to focus on several competing optimization goals for throughput and quality at the same time. Autonomous systems can help. They can augment the capabilities of current proportional integral derivative (PID) and model predictive control (MPC)-based control systems. AI-driven autonomous systems make real-time and dynamic adjustments to handle complex situations. By sensing and responding in real time, AI-powered automation optimizes equipment and processes. With it you can get more out of your systems as they will be able to control complex and dynamic processes, reduce the load on human experts, and manage multiple, conflicting optimization goals. Democratizing the development of autonomous control systems with AI Project Bonsai is an autonomous systems platform from Microsoft that provides tools to build an AI agent called 'brain' for driving industrial control systems in an optimal manner.

With low-code AI capabilities, it enables plant engineers to build and train the brain to leverage their subject matter expertise through machine teaching. A complete toolchain for building, training, and deploying brains, it has three main solution pillars—simulation, machine teaching and deep reinforcement learning. TCS has partnered with Microsoft on Project Bonsai to provide cutting-edge, AI-powered solutions to build optimized autonomous systems. Through our work on Project Bonsai, TCS aims to bring optimization in the following areas: Make your industrial systems intelligent. TCS autonomous systems solutions on Project Bonsai help: Take a step closer toward autonomous systems with TCS. TCS has made early investments in building autonomous systems capabilities with Project Bonsai. Leveraging the expertise of our Bonsai consultants, and our deep reinforcement learning and industry capabilities, we help companies develop autonomous systems. TCS has advanced specializations in Azure, AI, and machine learning. Our deep knowledge of simulators, combined with our strong partnership with Microsoft, augment the quality of our products and services.   TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ======================

TCS DevOps Services for Azure

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collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Agile and automated solution for business transformation You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are looking to leverage DevOps practices for accelerated development, deployment, and management of quality software platforms and applications on public cloud such as Microsoft Azure. The challenge? Incorrectly defined DevOps processes that are manually or partially automated, lack of organizational consensus, and inefficient operating models, among others. These result in poor productivity, a high rate of human error, and consequently, long deployment cycles and non-performing software. Enterprises need agile and automated DevOps capabilities to accelerate digital transformation and maximize business value and customer satisfaction.   TCS' DevOps Services for Azure include: These services are enabled by our highly skilled Microsoft-certified DevOps experts who are experienced in implementing DevOps solutions by leveraging the GitHub and Azure DevOps product suites. TCS has vast experience in driving the adoption of and migration to GitHub and Azure DevOps supported by our in-house accelerators for maturity assessment, adoption and migration. Automate applications, infrastructure, data and AI development and deployment processes fo Reduce provisioning time and technical debt to enable flow of revenue Leverage reusable templates, solution skeletons, and libraries on Azure for faster process Integrate design thinking into processes for a scalable and cost-optimized solution Incorporate security best practices with agile development methodologies and ensure compli   TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height
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Cognitive Applications on Azure

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Intelligent Document Processing Services on Azure

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every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Eliminate manual processes with cognitive services You have these already downloaded We have sent you a copy of the report to your email again.   The growth of enterprise data has made it imperative for organizations to convert unstructured and semi-structured data, derived from multiple sources, into structured data that is easily accessible for business processing. Rapid technical advancements in the areas of artificial intelligence (AI) and analytics are opening avenues for organizations to create a new value proposition for their customers by removing manual data processing bottlenecks. TCS Intelligent Document Processing Service on Azure offers next-gen automation services that capture, extract, and process data from a variety of document formats. It leverages AI technologies such as natural language processing (NLP), computer vision, deep learning and machine learning to classify, categorize, and extract relevant information, and validate the extracted data. This allows organizations to derive meaningful insights from data and gain a competitive edge. The service helps organizations mitigate manual errors, generate contextually rich documents at scale, and improve employee productivity. The solution provides the following benefits to enterprises: Improved accuracy by eliminating or reducing manual touch points to capture data from documents into enterprise systems Improved throughput and efficient operations by reducing the time required for completion of business workflows Reduced operation cost with automated processing of multi-lingual documents of various formats with high accuracy and speed Improved decision-making with meaningful insights   Data Platform Modernization and Migration to Azure Synapse Transform Enterprise Data Governance on Azure Purview Accelerating Data Transformation Using Data Analytics and AI Leveraging Conversational AI and Virtual Assistant to Improve CX No matter where you are on your cloud journey, we can help you get maximum value from it. ======================

Modernized Underwriting Platform on Azure

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the underwriting process closer to the point of sale, enabling agents to quote, submit, receive decisions, and issue policies, while improving the efficiency of the insurance value chain using straight-through processing. Its recommendation engine offers suggestions for medical examinations, risk classes, profile highlights and scores, probability of claims, and final decision of accepting or rejecting applications. Data centricity: Brings data from varied external sources into a centralized data lake to increase data gravity, by leveraging a standardized data architecture based on the Common Data model framework. 360-degree risk view: Allows underwriters to view historical data to detect trends, patterns and KPIs for improved decision making with the help of interactive dashboards. Graph analytics-based underwriting rules enable underwriters to assess health and lifestyle to reach the final decision for overall profit. Personalized products and dynamic pricing: Enables underwriters to visualize and analyze physical activity patterns of applicants. It helps them understand whether the risk trends over a period of time are positive or negative, and shape dynamic pricing and product personalization capabilities. TCS' solution helps life and health insurers become digitally enabled and data-augmented. It offers: 01. 360-degree view Enables applicant risk profiling with suggestions from an AI-based recommendation engine, and insights from the Book of Business and Underwriting rules embedded into the solution 02. Efficient evidence processing Processes applicant data efficiently based on standard data architecture 03. Enhanced customer experience Leverages cognitive AI bots and communication interfaces to build transparency between stakeholders and underwriters, and carries out policy administration tasks 04. Faster analysis of historical data Allows quick underwriting decisions, which would be mutually beneficial for firms and customers; helps in dynamic pricing, and personalization of products and services Data Platform Modernization and Migration to Azure Synapse Transform Enterprise Data Governance on Azure Purview Accelerating Data Transformation Using Data Analytics and AI Leveraging Conversational AI and Virtual Assistant to Improve CX No matter where you are on your cloud journey, we can help you get maximum value from it. =====================

Unified Worklist: Integrating Tasks

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Data Platform Modernization and Migration To Azure Synapse

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Decarbonization: The Missing Link to Net-zero No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

TCS Collaboration Pattern Insights

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insights, it helps businesses in understanding what it takes to transform meeting culture, improve manager effectiveness, and boost employee well-being and engagement. Discover how you can transform meeting culture, help managers to be more effective, and drive employee engagement. TCS Collaboration Pattern Insights comes with a host of approaches that help foster productivity and well-being for teams. Comply with data privacy legislation: TCS ensures Viva Insights licenses are seamlessly configured and onboarded, aligning with enterprises' unique business and goals. Viva Insights is compliant with privacy legislations such as General Data Protection Regulation (GDPR), and has several privacy and trust safeguards in place. We also provide guidelines to help enterprises work openly and transparently with their data privacy teams and clearly communicate to employees how they intend to use analytics and get their buy-in. Discovery workshops: These Microsoft-sponsored workshops enable targeted analysis that focuses on a tangible business problem. They help enterprises stay focused in their analytics journey, instead of just combing through massive amounts of data without an end goal or objective in mind. Organization data readiness: Pairs Viva Insights with enterprise data whether it's CRM data or data from qualitative research like surveys, interviews, or workshops. TCS validates, cleans, and standardizes the data, enabling enterprises to gain a holistic picture of people's experiences. Pre-baked dashboards: Offers a variety of pre-baked dashboards on Viva Insights, based on common use cases or business goal. With TCS assisting and resolving data discrepancy issues and providing guidance on specific custom queries, the heavy lifting required for onboarding and configurations are taken care of. Cross-functional team: Builds a cross-functional governance committee and sets the review rhythm, along with strong change management, governance, and review with key stakeholders. Consulting and advisory: Equips HR partners with insights consulting and advisory support services. The insights analyst team performs analysis with Viva Insights, which once configured and implemented, helps measure the change for organizations to move forward. While providing these services, we take a comprehensive approach that addresses business-specific needs, FAQs, and challenges with Viva Insights in technical and data analysis. Track collaboration and measure changes in company culture and employee experience with data-driven insights. With TCS Collaboration Pattern Insights, you can build better work habits and a workplace that helps your people and business thrive. Improve turnaround time by understanding data and generating insights in a timely and planned manner. Build a roadmap on how to make data-driven decisions and drive organizational change leveraging our industry experience, guidelines, and best practices to optimize work using Viva Insights. Increase productivity by tracking collaboration metrics, measure changes in your organization's collaboration culture and employee experience, and use the insights gained to boost productivity. Enhance employee well-being by analyzing employee work-life balance and flexibility at your organization, uncovering opportunities for improvement and tracking trends with time. Enrich and effectively manage with insights into the collaboration patterns of people managers and find ways to improve their effectiveness. Improve meeting culture by identifying and eliminating long, recurring, and low-quality meetings to improve productivity and complete projects faster. Establish efficient workplace practices by understanding how hybrid work affects the experience of onsite, hybrid, and remote employees differently, and learn

how to respond to rapid changes in work settings, like remote work. An illustration showing how TCS Collaboration Pattern Insights helps organizations track collaboration patterns, get actionable insights for desired business outcomes, and identify and capture new opportunities. Through actionable insights for improving meeting culture, driving remote working effectiveness, helping managers to be more effective, increasing employee engagement, and fostering diversity and inclusion, it helps organizations build a workplace where both employees and the business thrive. Rely on our expertise as you adapt to change with digital collaboration. When you partner with us, you can take advantage of the best of our capabilities: Certified analysts: TCS has a dedicated team to help you analyze data and gain actionable insights across common business outcomes with Viva Insights and certified Microsoft service adoption specialists and Power BI data analysts. Microsoft partner: TCS is a preferred Microsoft partner for Viva Insights. The TCS- Microsoft 360° partnership gives us an advantage of having the latest product updates and easy access to the Viva Insights product team. Proven expertise with people practices: TCS has credible knowledge of the entire employee journey and collaboration ecosystem, and a thorough understanding of the touchpoints which affect employee experiences. With TCS Human Capital services we augment Viva Insights to help organizations take data-driven actions. Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation Want to get the innovation edge with cloud? Theme Font size Line height =====================

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the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leverage an industry-leading banking solution that empowers innovation You have these already downloaded We have sent you a copy of the report to your email again. Unprecedented global events such as the COVID-19 pandemic have made digital transformation a focus area across all sectors. Banks, too, are reinventing themselves to remain relevant in the market. However, data ubiquity and data security are proving to be key challenges with the penetration of online and phone banking services. The emergence of fintechs has also forced traditional banks to reimagine their way of doing business, while consumers expect a high degree of convenience. Designed by domain experts based on years of experience, TCS Digital Customer Experience for Financial Services is an outcome-driven solution that increases revenue and reduces risks. With features such as a data modeling tool that enables faster integration with backend systems, a loan dashboard that provides a holistic view of opportunities for commercial bankers, and the Microsoft 365 Proposal Manager that delivers seamless cross-team collaboration across devices, the solution helps accelerate CRM implementations. With these rich features, the pre-built banking solutions and tools deliver better insights into customer behavior and provides insights into prospects and referrals. Meanwhile, the omnichannel customer service, which includes features such as case creation and distribution, provides a differentiated customer experience to users. By leveraging TCS Digital Customer Experience for Financial Services, enterprises worldwide can leverage the following benefits: Agile digital tools to improve customer journeys Up to 75% increase in automatic product recommendation Up to 80% increase in overall operational efficiency Up to 50% reduction in time to capture fact-find journey Artificial intelligence and advanced analytics to enhance customer experience Improve effectiveness for banking employees and customers Accelerate deployment and reduce operating expenses Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation
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Governance Framework for Microsoft Azure

TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Challenge Solution Benefits Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Ensure better governance of cloud environment and improved business outcomes You have these already downloaded We have sent you a copy of the report to your email again. As digitization gathers momentum, cloud computing has become the preferred choice of businesses worldwide. Enterprises are rapidly procuring cloud services from providers – such as Microsoft – to take the first-mover advantage. However, to ensure optimal adoption of Azure, cloud governance is imperative. While service providers do have their own portals for cloud management, a comprehensive governance framework can help streamline cloud adoption, ensure security and compliance, improve operational efficiency and optimize cost. An end-to-end cloud management system that ensures the usage of Azure services as per best practices, TCS Governance Framework for Microsoft Azure is a smart cloud solution that helps organizations gain better visibility over their cloud environment by automating governance. The future-ready governance portal provides a unified view across Azure subscriptions and services, defines governance policies and allows the auto-discovery of the resource map in an Azure subscription. Additionally, the portal tracks non-compliance

issues, generates a comprehensive report and offers recommendations. TCS Governance Framework for Microsoft Azure offers seamless cloud governance to enterprises throughout the cloud adoption journey and analyzes Azure resource usage data to identify opportunities and generate recommendations for cost optimization. TCS Governance Framework for Microsoft Azure synchronizes organizational goals and strategies with the cloud platform to improve their overall performance in the digital age. This cloud framework offers the following differentiators: Provides over 100 proven cost optimization recommendations Fine-tunes cost recommendations to suit individual cloud services Helps publish enterprise-approved cloud services using an in-built service catalog Allows companies to use public resources with pay-as-you-go pricing model Ensures security and scalability during application of cloud governance policies Ensures the application of consistent policies under the umbrella of Azure DevOps Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation

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Data platform modernization and migration to Azure

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collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Accelerating the intelligent enterprise journey with cloud and data Enterprises are sitting on a wealth of data. What's more, they need to constantly work with data coming in from myriad sources. While there's an abundance of data, for enterprises to be able to gain a competitive edge with data, accessibility to data is critical. Companies also need to have the capability to glean and use the insights from data effectively to make intelligent decisions and drive growth. They can accelerate their journey to becoming data-driven, intelligent enterprises by leveraging the power of cloud and modern data management techniques. TCS can help enterprises realize greater value from their data strategy with Machine FirstTM led innovative solutions and services on Microsoft Cloud. With services ranging from advisory to build and run based on the agile methodology, we make the data on cloud journey seamless. We offer a combination of solutions and frameworks focusing on different data aspects like data ingestion and validation, Hadoop, database migration, and archival and ERP data storage using our proprietary Machine FirstTM principles. These include: A framework to migrate data from online database transaction processing (OLTP) sources like Oracle, SQL server, Postgres, MongoDB, and DB2 to Azure Cloud databases like Azure SQL, Azure PostgreSQL, and Azure Cosmos DB using Azure-supported tools. Self-service accelerated data ingestion solution and AI-driven data quality and data validation tool, which is used to ingest data from various sources such as cloud, file folders, FTP/SFTP and file servers, databases, and distributed file systems like HDFS into Azure Data Lake and Operational Data Store. A framework to accelerate and simplify migration of data from appliances such as Netezza, Exadata, and Teradata to Azure Synapse and Snowflake. A framework to migrate HDFS and applications from the Hadoop ecosystem to the Azure environment. A framework to ingest ERP data into Azure Cloud and integrate it with other data to gain meaningful business insights. A solution to archive on-premise data using Azure cloud storage.   We provide integrated advisory, build and run services based on the agile methodology, particularly for: Data standardization: Ready frameworks, architecture designs, and re-deployable connectors ensure quick integrations with legacy applications and databases. Data integrity: Next-gen data warehouse with architecture re-platforming process, pre-build modeling, online sustenance analysis, and automation at each step ensure data integrity for voluminous data. Automation: Auto-provisioning of secured Azure services enables unified visualization and cost-efficient deployments. Data factory model: Defined agile processes drive optimal utilization. Edge ahead with data democratization, improved productivity, faster application development, and speed to market—all at a lesser cost. Here's what you can gain: Faster go-to-market through dynamic load handling, minimal preparation for setup, data ingestion accelerators, and quick service deployments. Cost control and lower total cost of ownership by leveraging Microsoft Azure PaaS services and ready calculators enabling cost forecasting, and embedded FinOps

solutions that drive 40% cost optimizations. Improved productivity and a 50% effort reduction. Embedded Unified Industry Governance practices provide 40% automation and 100% seamless integration of various data sources to build enterprise data catalog, lineages, and glossaries. Seamless data migration, quality check, archival and validation. Data migrations are done with user-friendly, self-service interfaces, bringing 45% efficiencies in operations and productivity. Democratization of software development with preconfigured data migration code and user-friendly UI for easy configurations Limited human intervention with our Machine First-based approach for data ingestion, transformation and testing. When you work with us, you can make the most of our strategic partnership with Microsoft, deep domain expertise, and product engineering excellence. TCS has a strategic partnership with Microsoft. TCS is a tier 1 Azure managed service partner, Microsoft Gold partner, and Azure expert managed services provider with advanced specialization on data warehouse, advanced analytics, and AI. TCS' MBU Data Analytics & Insights group is focused on data platform modernization and appliance migration offerings on Azure. TCS and Microsoft joint investments and engineering collaboration enable future-ready solutions powered by the latest technologies for your business. Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation Want to get the innovation edge with cloud? Theme Font size Line height
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TCS Industry Data Mesh on Microsoft Cloud

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products during housekeeping. Data producers can focus on building the required data products with the exact business use case in mind. Data producers and domain owners can create a data governance or product layer through the user interface with automated deployment templates. Data producers and consumers can have P&L on their respective data portfolios, where each data product can be monetized through specific revenue models. Enabling data collaboration at scale with TCS Industry Data Mesh on Microsoft Cloud The solution has helped enterprises realize the following benefits: 40% reduction in time to insight 30% return on investments in data and analytics for various user personas Data democratization and accelerated data-driven journey with unique data-product life cycle solutions Easy discovery of data products through self-service Optimized cloud estate costs as the domain owner can validate data product adoption and plan Partner with TCS to leverage our key differentiators. Our industry and domain expertise, and data mesh-ready solutions for faster deployments Expertise of our Data and Analytics on Microsoft Cloud team and advanced analytics offerings on Azure Dedicated CoEs, SMEs, and architects from TCS and Microsoft for industry data mesh consulting and implementation programs TCS and Microsoft joint assessment programs for data mesh Our investments in Microsoft's continuous training programs and Azure sandbox for solution developments Scaling Success: Bringing Microsoft 365 Copilot to Enterprises TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces How PODS improved productivity with cloud and IT automation Want to get the innovation edge with cloud? Theme Font size Line height

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TCS Digital Transformation for SAP on Microsoft Azure

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TCS' data analytics and AI services on Microsoft Cloud

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outcome ----- Solution Harness the Power of Data and Analytics for better Business Outcomes In this article Overview Solution Benefits THE TCS ADVANTAGE Transformation starts here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS AND MICROSOFT CLOUD / SOLUTION Maximize value from your data transformation journey with a comprehensive, cloud-based strategy You have these already downloaded We have sent you a copy of the report to your email again. Highlights Drive business innovation and transformation with data on cloud. Data is a powerful asset for any company. It helps enhance customer experience, build innovation ecosystems, minimize risks, and drive exponential business value. However, many organizations fail to tap into the full power of data due to various reasons such as data silos, outdated solutions, and accessibility issues. Data on cloud can help overcome these challenges. It offers opportunities for enterprises to optimize data, collaborate and innovate with it, and transform for the future. But to unlock the true value of data on cloud, companies need to adopt a comprehensive, cloud-based data strategy built on machine-first principles, AI and ML intelligence, agile development, and automation. We offer a range of analytics and AI solutions and services on Microsoft Cloud to help companies accelerate data transformation. Going beyond point solutions, we take a holistic and integrated approach to data strategy. Our solutions are based on a Data Intelligence Impact Cube framework for building data-driven enterprises. They include: Data platform modernization on Azure: Entails assessing enterprises' data maturity and consulting to help clients migrate and modernize their data platform on cloud, and chart their transformation road

map. Data governance and XOps (data and AI/ML operations) on Azure: Ensures data platform integrity, easy searchability of contextual data, cloud cost monitoring, and management. TCS is a Top Data Governance Partner of Microsoft Purview, a unified data governance solution. Intelligent process automation on Microsoft Cloud: Automates rudimentary operations to save time and effort. Advanced analytics and reporting using Azure: Derives valuable insights for easy consumption by businesses using new AI technologies such as generative AI. Modern data architecture on Azure: Helps build a future-proof, cloud-scale analytics framework for on-demand modern data platforms for enterprises. Data management services on Azure: Helps companies manage their data landscape on cloud. The strength of our solutions is reflected in the fact that many of them are 'co-sell incentivized' and listed on Microsoft's Appsource and Azure Marketplace. Differentiate your company with improved product performance and enhanced customer experience. Leverage our deep industry experience, contextual knowledge, and partnerships to chart a course to future-ready growth. TCS Industry Data Mesh on Microsoft Cloud TCS Azure Application Modernization Services TCS Digital Transformation for SAP on Microsoft Azure Two steps to effective cloud operations To learn more about TCS' Microsoft Cloud services. Theme Font size Line height =====================

TCS Generative AI Enterprise Adoption on Azure

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service desk intelligence and reduce service wait times, provide automate response to natural language queries by leveraging enterprise knowledge base, optimize supply chain and inventory forecasting, create and summarize content faster, share social media conversational analytics, and improve career development for employees. Power change with TCS Generative AI Enterprise Adoption on Azure. With our focus on responsible AI, we ensure that you make the most of generative AI on Azure ethically. With our contextual knowledge of our clients, custom AI/ML-driven solutions, and proven track record of ensuring privacy, security, and cost optimization, we can help clients drive maximum benefits from generative AI. Building on TCS' data analytics and AI services on Microsoft Cloud and leveraging our 50,000 AI-trained associates and 50,000 Microsoft-certified associates, we are uniquely positioned to help customers embark on their generative AI on Microsoft Cloud journey. TCS is a member of Microsoft's Azure OpenAI Council, a Microsoft Fabric launch partner, and has earned a Partner Designation in Data & AI, along with advanced specializations in AI and Machine Learning on Azure and Analytics on Azure. Get an innovation edge with Microsoft Cloud TCS Cognitive Plant Operations Adviser Power Platform Services TCS Smart Manufacturing and Digital Supply Chain Learn how we can help with the next step of your generative AI journey. Theme Font size Line height =====================

TCS Digital Workplace on Microsoft Cloud

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over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. The future of work In today's world of hybrid workplaces and shifting employee priorities, ensuring employee collaboration, productivity, and satisfaction has become an important success factor for organizations. As employers seek to provide a sense of belonging and purpose to their employees, they are also looking for ways to ensure that their workforce is productively engaged and willingly contributing to organizational goals and priorities, location independently. With employees increasingly looking at work as a subset of life and seeking reasonable work-life balance, identifying the right blend of technology, the correct employee experience platform, and the precise business strategy could very well be the difference between success and failure for an organization. Leveraging next-generation AI and cloud solutions for transformative workplace experiences and superior business outcomes TCS' workspace solutions on Microsoft Cloud foster positive, employee-focused cloud solutions that improve employee experience while also enhancing productivity. The solutions are categorized into four main services: Some of the key accelerators of Microsoft Teams include a unified worklist, smart meetings, workplace analytics, TCS power platform accelerators, the Office 365 and governance suite, field force digitization, virtual consumer connects and meetings, a seamless IT helpdesk experience, a TCS employee hub, and a unified migration portal. Leveraging the power of Microsoft technologies to craft unmatched workplace experiences   TCS specializes in keeping employee experience at the heart of the workplace and implementing solutions that enable employees to always give their best. We help organizations to: Create competent, result-driven workforces by providing integrated work experiences through Microsoft Viva and Microsoft Teams, and unifying communication, knowledge, and learning for your employees. Transform dull, routine work into automated processes through smart apps developed using no code/ low code supported by Microsoft Power Platform. Ensure seamless and secure collaboration through the implementation of the full Microsoft 365 stack for on-premises, cloud, and hybrid environments. Enhance your experience of the Microsoft 365 suite by leveraging TCS managed services that provide end-to-end automation-powered administration and operations support.   Rely on us to power up your digital transformation. A partnership with TCS provides: Design thinking: Our empathy-driven design approach, combined with the power of Microsoft 365 platform and services, ensures exceptional employee experiences. Partnership with Microsoft: Strategic alliances with Microsoft (Microsoft Premier Outsourcing and Microsoft Gold Certified partner), SAP, and ServiceNow enable us to provide exceptional consulting, solution design, integration, customization, deployment, and operation support services. Proven expertise: Our wide-ranging workplace and employee

experience transformation services, together with our immensely experienced field force, can help accelerate your organization's digital transformation journey.   Modern intranet and employee applications TCS Migration Services for Microsoft 365 DuPont enhances employee experience Sainsbury's simplifies workflows, reduces spend Learn how we can help with the next step of your generative AI journey. Theme Font size Line height ======================

Consent management solution

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evolving data privacy laws to win customer trust. TCS' Consent Management Solution offers a range of capabilities to enhance data privacy, such as: TCS' solution offers the following benefits: Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense TCS Managed Detection and Response Services Securing Digital Assets with Enterprise Vulnerability Management Ready to secure your digital estate? Theme Font size Line height =====================

Security Services on Microsoft

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remote locations, which has increased the risk of cyberattacks by an order of magnitude. Enterprises need to manage individual access on cloud, workplace and applications, prevent accidental sharing of confidential data, remove redundant security controls, ensure visibility, centralized governance and adherence to compliance and regulations. TCS SOLUTION TCS Security Services on Microsoft follows the principle of 'optimal security with minimal complexity' and creates a secure environment for user, data, applications, devices, cloud, and infrastructure. TCS' offers advisory and consultancy, design and implementation, and managed services: Azure Security: Provides end-to-end Microsoft Azure cloud security advisory and assessment. This includes design, end-to-end implementation of Azure security services with and third-party solutions Office 365 Security: Offers an end-to-end Office 365 security assessment and advisory to assess architecture, security controls, maturity of configurations, governance strategies, security policies and processes Modern Workspace Security: Implements end-to-end security design and modern workplace through Microsoft in-built security components such as Defender, Windows Hello, Defender ATP, Azure Information Protection, Bitlocker, and so on   Azure Sentinel: Ensures log collection and round-the-clock event log monitoring to help early detection and meet regulatory compliance and forensic requirements Security Operation Center (SOC) Services: Provides end-to-end security operation center advisory and assessment services BENEFITS TCS helps secure an enterprise's IT landscape and enhances cloud security posture with: Service quality and responsive delivery: Cloud security transformation and strategic approach ensures high quality standards, customer-centric service delivery, and SLA-governed deliverables Built-in security with faster time to market: TCS provides built-in security services which can fortify cloud infrastructure and modern workplace from day zero with minimum effort Cost and time efficiency: Reduced time to provision and onboard the security services setup meets organization's business requirements TCS ADVANTAGE Partnering with TCS has specific advantages: Domain expertise: TCS' team of cloud security professionals have extensive experience in executing large enterprise and complex assignments. Performance is driven by metrics and service level agreements (SLAs) to ensure tangible outcomes. Unique delivery model: TCS' delivery model is based on the information technology infrastructure library (ITIL), with consistent round-the-clock support at lower cost. Research-backed solutions: Six centers of excellence (CoEs) focused on cyber security constantly research emerging threats and vulnerabilities to help secure all assets. Strategic Alliance with Microsoft: TCS has been recognized as an Azure Expert Managed Service Provider. A 360° relationship with Microsoft as partner, customer and supplier spanning 15+ years.   Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate?
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Cybersecurity for Operational Technology and IoT

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security standards. The ICS security risk assessment allows for a comprehensive assessment of security threats, and their impacts on ICS, while the security integration services are meant to design and implement a defense-in-depth approach to protect ICS. Further, the IT-OT managed security services include turnkey, centralized security operations for security monitoring to provide a holistic approach to manage ICS security. BENEFITS By leveraging TCS Industrial Control System Security Services, enterprises can ensure the following: Reduced operations downtime due to cyber attacks Zero chances of cyber attacks on operations Lower TCO for ongoing ICS security management and operations Better resilience of industrial systems and networks against cyber attacks Continuous monitoring of vulnerabilities and threats to the ICS environment Comprehensive insights into the management of security risks across an enterprise Reduce revenue loss due to operations disruptions as a result of cyber attacks   Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? =======================

Securing the cloud with a zero-trust approach

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beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Taking a Machine First™ approach to building cyber resilience Cyber security is a vital aspect of cloud migration. With cloud taking over the IT landscape, chief information security officers (CISOs) are now focusing on 'borderless security' instead of 'perimeter security'. They are looking at cognitive tools for heightened surveillance and quick detection, threat identification, and intelligent responsiveness as proactive measures rather than being reactive and responding to incidents. TCS Cloud Security Services solution offers end-to-end services across the cloud journey, including security design and architecture, migration advisory, and security assurance. A holistic approach to secure your cloud transformation journey and ensure digital transformation success TCS Cloud Security Services solution offers end-to-end services across the cloud journey, including security design and architecture, migration advisory, and security assurance. It also ensures data and applications are safe and secure in the cloud from current and emerging cyber security threats. Our offerings: Cloud security consulting: Provides cloud security maturity assessment, security design and architecture, security migration advisory, and security assurance. Secure foundation build: Ensures foundation is built using prebuilt templates and shift left security is implemented utilizing policy as a code. Cloud security migration: Secures migration of data and applications and extends security controls to the cloud. Cloud security modernization: Supports various niche cloud security requirements such as multi-cloud security controls definition and deployments. Get next-gen security solution implementation and operationalization, workload protection. Leverage DevSecOps and SaaS security to define and deploy cloud access security broker (CASB), cloud infrastructure entitlement management (CIEM), code security (Policy as Code) and SaaS Security Posture Management (SSPM). Cloud security operations: Enables instrumented governance across multi-cloud environments and provide advanced and specialized cloud-based security operations. Ensuring resilience with zero-trust approach TCS' zero trust framework is a strategic approach to building a secure and resilient cloud by continuously validating every session and connection. In accordance with the never trust, always verify principle, we help enterprises improve digital trust and build cyber resilience. Our central tenets include using strong authentication methods, leveraging network segmentation, preventing lateral movement, preventing threat, and granular least access policies across cloud environments. Accelerate time to market with predefined security blueprints Continuously monitor and enforce compliance status Maintain consistency with 'policy as a code' approach Enhance service quality with transparency and visibility Reduce security debt with best practices and process automation A trusted partner for secure digital transformation with a rich and diverse global experience Service enablers: A set of service enablers, reusables, and accelerators ensure customer benefit through reduced cost, improved

quality, and agility. Skilled domain professionals: Large pool of associates with contextual knowledge and trained on focused technology, certified by respective OEM or partner. Solution center: Dedicated cloud solution centers ensure focus and readiness for end-to-end service delivery of cloud security solutions. Research-backed solutions: Nine centers of excellence focus on designing research-backed, cutting-edge cyber security solutions. Strategic alliances: Extensive partner ecosystem establishes industry-wide thought leadership, drives smooth competency development, and provides early access to products and services. Migration strategy: Vast expertise in setting up a secure, effective, and repeatable migration strategy. A three-pronged approach to secure your multi-cloud Automate cloud security Securing a Multi-cloud Environment with Next-gen MDR Solutions TCS Helps Healthcare Insurance Firm Improve Cloud & Data Security Ready to secure your digital estate? Theme Font size Line height
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TCS Digital Forensics and Incident Response Services

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walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Modern businesses thrive on data, and the proliferation of data presents significant challenges such as cybercrime, security breaches, and digital fraud. Enterprises that rely on digital systems for data generation and processing are facing a rising number of advanced persistent threats (APT), ransomware attacks, and online identity threats. The on-premise infrastructure is gradually getting replaced with cloud. Manual systems and supervision are unable to combat increasing cybercrimes, security breaches, and digital fraud arising from the ever-increasing volume of data. Today's enterprises must be equipped with advanced digital forensics and incident response capabilities for both on-premise and cloud environments to detect, analyze, and respond to incidents at short notice. TCS Digital Forensics and Incident Response Services provide a comprehensive set of capabilities that identify gaps in the existing security infrastructure and help businesses predict, detect, and mitigate security incidents. Our Digital Forensics Center of Excellence labs identify, collect, analyze, and utilize digital evidence to ascertain the root cause of security breaches and suggests predictive recommendations to mitigate threats. We can elevate your cyber defence with: Incident response: Emergency response: Identify the root cause of attacks and suggest containment measures to stop the spread of infection. On-demand incident response (retainer): Prepare for rapid response by using incident response retainer and quickly address the most pressing concerns. Digital forensics: Perform forensic procurement and investigation of on-premise, cloud, and containerized systems at scale to keep the chain of custody and protect forensic data. Detect malware, suspicious events, and personal identifiable information risks by combining intensive analysis with full content inspection. Be combat-ready to thwart cyber attacks and security breaches. TCS Digital Forensics and Incident Response Services provide the following benefits to enterprises: Contain and mitigate security breaches: Establish a forensic-ready environment with effective investigation capabilities to dissuade potential attackers. Contextual risk management: Understand attackers' tactics, techniques, and procedures, and reduce business risk by rapidly uncovering stealthy attacks and attackers. Increased regulatory and legal compliance: Achieve 100% compliance with regulatory and legal guidance and significantly reduce the cost of data disclosure. Enhanced productivity: Reduce breakdown of critical information systems and network downtime to zero hours during forensic analysis of live systems, and boost organizational productivity. Increased profitability: Reduce revenue leakages and minimize the cost of investigations by quickly identifying, probing, and mitigating breaches. Sustain brand loyalty: Win customer confidence by building a resilient business that safeguards sensitive customer and business data. A holistic and agile approach to improve cyber resilience and keep your enterprise safe. TCS can help enterprises experience speed, accuracy, and depth in every engagement and leverage the following key differentiators: Dedicated labs for digital forensics with the latest tools, software, and infrastructure. Dedicated malware analysis labs with virtualized isolated environment to reduce litigation risks and protect sensitive data. Large pool of certified digital forensic, malware, and eDiscovery specialists providing continuous support throughout the incident

management lifecycle. Strategic partnerships with tool and service providers such as NUIX, Exterro, Cado, and Mandiant to expedite incident resolution. Industry-leading dip stick assessments to gauge incident readiness, SOPs, and best practice guides baselined on NIST and CIS Framework. Largest telemetry of partner network and cross-customer threat information facilitates contextual analysis and accelerated resolutions. TCS Governance, Risk, and Compliance Services Enhance cyber resilience with zero trust security 7 Key Factors to Build Efficient Enterprise-wide Cyber Resilience Securing Digital Assets with Enterprise Vulnerability Management Ready to secure your digital estate? Theme Font size Line height =====================

Protect your data with TCS' data security services

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globally are driving faster adoption of data security technologies. Today's global organizations must comply with over 100 international privacy laws and initiatives that require enterprises to secure their data end-to-end. The risks of data loss from cyber attacks are high and could warrant hefty penalties while seriously impacting customer loyalty. Securing enterprise data is a complex journey with multiple challenges, some of which are: Achieving compliance with data laws such as HIPAA, GDPR, CCPA, and PCI-DSS is not easy due to diverse requirements in data security and privacy. Increasing regularity and sophistication of data breaches, and ransomware and double extortion attacks. Expanding organizational boundaries due to the adoption of mobility, cloud, and partner ecosystem is bringing new data risks. Missing data classification and tagging of enterprise sensitive data are resulting in inappropriate data security controls and non-compliance. Centralizing data requires consistent data access, governance and visibility into enterprises' hybrid and multi-cloud environments. Preventing data leakage with dynamic and contextual security policies Data democratization brings new requirements like a uniform governance policy, a holistic approach to data privacy, and compliance with ever-evolving global regulations. Secure your complex data ecosystem with TCS' integrated data security services. Our solution helps you secure sensitive business data, meet complex privacy regulations, and mitigate risk from data breaches and ransomware. Key features: Consultative approach to identify enterprises' data privacy and data security requirements and associated risks by performing Data Privacy Impact Assessment (DPIA), Data Security Maturity Assessment (DSMA) and data risk assessment to evaluate the current state and recommend corrective actions. Sensitive data discovery, classification, and tagging for enterprise data sets (structured and unstructured), including the development of relevant policies and standards. Centralized data access governance for hybrid and multi-cloud data to identify and remediate access privileges to sensitive data. Deployment of data protection technologies like masking, encryption, tokenization, key management, and secrets management. Integrated data leakage protection and information rights management controls to protect the data at rest, data in use, and data in motion across on-premise, hybrid, and multi-cloud. Industry-specific customized data security solutions for healthcare, retail, communication, and media. Modernize your data security ecosystem and build a data-centric business with confidence. With TCS' data security services, enterprises can holistically address the complex needs of data security controls across the data life cycle and achieve the following: Meet compliance requirements and reduce data security breaches Enable better usage of enterprise data. Secure and control sensitive data on cloud and on-premise servers. Accelerate digital transformation journey with zero-trust. Simplify privacy compliance with centralized data governance. Streamline data and identity security with industry-specific solution. Integrate siloed data-security controls. Manage better with industry-best SLAs and KPIs. Enhance data security with world class expertise across consulting, assessment, design, implementation, and managed security services. By partnering with TCS, enterprises can leverage our: Global experience in delivering data privacy programs and relevant data security to meeting data requirements such as GDPR, the U.S. California Consumer Privacy Act of 2018 (CCPA), and the Payment Card Industry Data Security Standard (PCI-DSS). Turnkey services across advisory, engineering, and managed data

security services. Strategic alliances with leading privacy and data security solution vendors. Data security lab to simulate and test customized use cases. Automation playbooks for engineering and operational activities. Regional threat management centers to support regional data security service needs. 7 Key Factors to Build Efficient Enterprise-wide Cyber Resilience Enhancing Cyber Resilience of IoT and Industrial Environments Toward Enhanced Cybersecurity of IoT Devices A global credit bureau secures credit scores Ready to secure your digital estate? Theme Font size Line height =====================

TCS Network Security Services

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surfaces, enterprises must reimagine their traditional cybersecurity strategies to secure their digital estate. Next-generation network security delivered through cloud can help mitigate risks and bring with it enhanced visibility, advanced threat detection, and protection. By adopting network security as a service, enterprises can gain speed and agility for business transformation, and provide anytime, anywhere access to its hybrid workforce. Our end-to-end managed network security services secure your digital journey by protecting extended perimeters, including cloud, edge, and industrial networks. TCS offers future-ready, end-to-end network security services that can help organizations elevate their security posture. Our services include: Network security advocate – Review and benchmark the current network security architecture to suit the needs of digital business. Benchmarks include zero trust, security access service edge (SASE), and the National Institute of Standards and Technology (NIST) framework cybersecurity framework. Network security engineering – Design and build next-generation network security controls with software-defined networking, SASE components, zero-trust network access, next-generation firewalls, distributed denial-of-service (DDoS) attack, bot management, and micro-segmentation. Network security operations – Enable proactive, 24x7 monitoring and response. Network security assurance – Make regular assurance activities, including policy and rules review, configuration, and compliance review, easier. Network security as a service (NSaaS)– Mitigate threats with web application and API protection as a service (WaaP), network security assurance as a service, and SASE as a service. Secure your IT estate to build a robust digital business and win customer trust. Validate network security to meet digital business needs, support hybrid workforces, and facilitate industry initiatives. Drive digital transformation with future-ready security tools that offer rich user experience. Achieve speed and agility, with quick onboarding of the network security services to protect SaaS apps, infra and data. Improve security and compliance, with centralized policy definition and enforcement. Reduce operational complexity and cost and improve return on security investment (ROSI). Outpace cyber criminals with our industry-leading solutions. By partnering with us, you can leverage: Technology expertise: Our experience includes hundreds of network security engagements for global clients. 80% of our security experts hold network security and product-agnostic certifications. Next-generation network security framework: Our SASE transformation framework provides a reference to co-create a tailor-made network security roadmap that enables digital businesses. Platform services: Part of TCS' Cyber Defence Suite platform, our Network Security Services includes web application and API protection as a service (WAAPaaS), network security assurance as a service (NSAaaS), and SASE services. Accelerators: Leverage scripts to automate network security provisioning, configuration management, and assurance activities. Partnership and alliances: Our partnerships with leading network security vendors and hyper scalers help provide delivery assurance and allow us to test specific use cases in co-created labs. Enhance cyber resilience with zero trust security 5G Technology: Risks and Principles to Ensure Network Security Enhancing Cyber Resilience of IoT and Industrial Environments A three-pronged approach to secure your multi-cloud Ready to secure your digital estate? Theme Font size Line height =====================

TCS Governance, Risk, and Compliance Services

Services Data and Cybersecurity to Fight off Cyberattacks Highlights In this article Challenge Solution Benefits The TCS Advantage Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cybersecurity / Success Story You have these already downloaded We have sent you a copy of the report to your email again. Cybersecurity has gained importance over the years and is now a board-level concern. Enterprise-level security and regulatory compliance are no longer a matter of choice, but a business necessity. Organizations need the right frameworks to manage internal and external threats in real time with proper reporting on compliance. Internal processes need to be tightened to ensure effective and efficient protection of the organization's critical assets along with data privacy and protection. External threats that arise from vendor or third-party risks are also a key concern. Third-party IT services including those over cloud could pose a threat to customers' business and should be assessed regularly. Address the ever-evolving regulatory compliances and risk posture with a robust and future-ready security service. Secure your cyber landscape and drive compliance. TCS Governance, Risk, and Compliance Services provide customers a range of services, which can help

them securely set up their business processes. This includes: Governance setup: Consulting services to set up information security management systems, based on industry standards (NIST, ISO27001, CIS, PCI DSS) and regulatory requirements. This includes performance of assessments, identification and recommendation of mitigating controls, and creation of implementation roadmaps. Risk management: Defining and setting up risk management frameworks based on industry best practices and standards such as ISO 27005, along with regular risk assessments to identify risks and compliance to internal and external audits Third-party risk management: Defining and implementing third-party risk management frameworks, conducting regular third-party assessments, and tracking the findings to closure. Compliance assurance: Compliance to regulations (SOX, CCPA, GDPR, NERC CIP) and standards (PCI-DSS, ISO 27001 NIST, CMMC) by defining processes for continuous monitoring of controls implementation. This also covers defining key KPIs and KRAus for reporting on security control compliance status. Automation of compliance assurance: Evaluating, implementing, and operating industry leading tools (RSA Archer, ServiceNow, Metric Stream) to automate various GRC processes. We also provide enhancement and support. Achieve GRC compliance holistically. With our services, you can achieve the following benefits: Assure: Regular compliance and security status updates Better management of compliance validation across the organization Assurance of adherence to Infosec policy, guidelines, and best practices Assurance to leadership on security status through regular reports and dashboards Automate: Automation of GRC function and processes help customers achieve efficiency and high-quality results Track remediation action items till closure Simplify: Simplification of complex compliance requirements and creation of a common compliance framework, ensuring consistent implementation across different lines of business Manage risks: Efficient risk addressal from internal processes and external third parties Meet regulatory requirements and enhance your organization's risk posture. Global experience: Rich experience of defining and operating security strategy for large corporations across geographies Domain experience: Deep domain knowledge of global regulatory standards; a rich pool of certified, experienced, and skilled resources to consult Effective governance: Dedicated Center of Excellence team to focus on trends and client requirements Ready to secure your digital estate? Theme Font size Line height =====================

Digital Forensics and Incident Response Services

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TCS Cybersecurity for Operational Technology and IoT

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Services Data and Cybersecurity to Fight off Cyberattacks Highlights In this article Overview Solution Benefits The TCS Advantage Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Enhance cyber resilience of industrial and IoT environments to accelerate business outcomes. In a connected world, organizations must take a long and hard look at how they can protect their OT and IoT implementations from cyberattacks. Always-on connectivity and voluminous flow of data rapidly from connected devices increase the attack surface. An increasing number of cyber incidents on OT networks and IoT ecosystem is a reality that enterprises can no longer ignore. These networks pose unique security challenges that every business has to tackle: A disparate and legacy IT landscape is difficult to secure Ensuring continuous availability requires continuous monitoring Lack of test environments can affect IoT security posture Proprietary OT and IoT protocols often cause integration issues TCS Cybersecurity for Operational Technology and IoT services fortify your OT and IoT implementations and prevent operational disruption from cyberattacks. Our services include consulting, solution design, technology adoption, managed operations, and continuous improvements to uplift the security maturity of your OT and IoT implementations. These services are designed not only for industrial OT and IoT ecosystems but also for connected vehicles, railway infrastructure, and connected medical devices. Our consulting services assist enterprises to establish security governance and frameworks, comply with ever-increasing regulations and industry standards and develop a security transformation

program to enhance security of the OT and IoT ecosystems. We enable security risk assessments of current implementations, leading to identifying, evaluating, designing, and implementing best-fit solutions to strengthen cyber resilience. We provide centralized and integrated security operations to monitor and secure the entire IT-OT-IoT ecosystem. Our Cyber Defense Suite offers fully managed and platform-based services. TCS' solution adopts next-gen security measures and tactics to secure the operating environment and eliminate cyber disruptions. Next-gen defense strategies to holistically secure your OT-IoT estate and keep cybercriminals at bay. Reduce operational downtime from cyberattacks. Create a bedrock of defense to secure your OT environment. Lower total cost of ownership for securing OT-IoT landscape. Improve resilience of your industrial systems and networks. Embed continuous threat and vulnerability monitoring. Gain complete visibility into security risks across the enterprise. Remove risk of revenue leakage due to cyberattacks. Combining client-first philosophy with five decades of technological experience, TCS constantly strives to build industry-leading security solutions to help enterprises stay ahead of hackers. By partnering with us, enterprises across all industries can leverage our: Recognized industry footprint: TCS has decades of experience in cybersecurity, with a global reputation and recognition. Our out-of-the-box solutions make us the turnkey partner providing services right from strategic consulting and execution to sustenance. Contextual knowledge: TCS has two decades of experience in operational technology, IT infrastructure services, and cybersecurity. Our in-depth contextual knowledge of clients' business empowers us to mitigate advanced threats in the industry 4.0 age. Strategic partnerships and alliances: TCS has forged strong partnerships with leading industry players to build best-in-class cyber solutions. Our collaboration with specialized OT-IoT security solution providers such as Microsoft, Tenable, Fortinet, Forescout, Palo Alto, Cisco, Trend Micro, and others helps us deliver best-of-breed security solutions to our clients Toward Enhanced Cybersecurity of IoT Devices Securing Digital Assets with Enterprise Vulnerability Management Accelerating Digital Transformation with TCS Network Security Services How Modernizing Cybersecurity Empowers Business Growth Ready to secure your digital estate? Theme Font size Line height =====================

Securing the cloud with a zero-trust approach

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here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Taking a Machine First™ approach to building cyber resilience Cyber security is a vital aspect of cloud migration. With cloud taking over the IT landscape, chief information security officers (CISOs) are now focusing on 'borderless security' instead of 'perimeter security'. They are looking at cognitive tools for heightened surveillance and quick detection, threat identification, and intelligent responsiveness as proactive measures rather than being reactive and responding to incidents. TCS Cloud Security Services solution offers end-to-end services across the cloud journey, including security design and architecture, migration advisory, and security assurance. A holistic approach to secure your cloud transformation journey and ensure digital transformation success TCS Cloud Security Services solution offers end-to-end services across the cloud journey, including security design and architecture, migration advisory, and security assurance. It also ensures data and applications are safe and secure in the cloud from current and emerging cyber security threats. Our offerings: Cloud security consulting: Provides cloud security maturity assessment, security design and architecture, security migration advisory, and security assurance. Secure foundation build: Ensures foundation is built using prebuilt templates and shift left security is implemented utilizing policy as a code. Cloud security migration: Secures migration of data and applications and extends security controls to the cloud. Cloud security modernization: Supports various niche cloud security requirements such as multi-cloud security controls definition and deployments. Get next-gen security solution implementation and operationalization, workload protection. Leverage DevSecOps and SaaS security to define and deploy cloud access security broker (CASB), cloud infrastructure entitlement management (CIEM), code security (Policy as Code) and SaaS Security Posture Management (SSPM). Cloud security

operations: Enables instrumented governance across multi-cloud environments and provide advanced and specialized cloud-based security operations. Ensuring resilience with zero-trust approach TCS' zero trust framework is a strategic approach to building a secure and resilient cloud by continuously validating every session and connection. In accordance with the never trust, always verify principle, we help enterprises improve digital trust and build cyber resilience. Our central tenets include using strong authentication methods, leveraging network segmentation, preventing lateral movement, preventing threat, and granular least access policies across cloud environments. Accelerate time to market with predefined security blueprints Continuously monitor and enforce compliance status Maintain consistency with 'policy as a code' approach Enhance service quality with transparency and visibility Reduce security debt with best practices and process automation A trusted partner for secure digital transformation with a rich and diverse global experience Service enablers: A set of service enablers, reusables, and accelerators ensure customer benefit through reduced cost, improved quality, and agility. Skilled domain professionals: Large pool of associates with contextual knowledge and trained on focused technology, certified by respective OEM or partner. Solution center: Dedicated cloud solution centers ensure focus and readiness for end-to-end service delivery of cloud security solutions. Research-backed solutions: Nine centers of excellence focus on designing research-backed, cutting-edge cyber security solutions. Strategic alliances: Extensive partner ecosystem establishes industry-wide thought leadership, drives smooth competency development, and provides early access to products and services. Migration strategy: Vast expertise in setting up a secure, effective, and repeatable migration strategy. A three-pronged approach to secure your multi-cloud Automate cloud security Securing a Multi-cloud Environment with Next-gen MDR Solutions TCS Helps Healthcare Insurance Firm Improve Cloud & Data Security Ready to secure your digital estate? Theme Font size Line height

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TCS Enterprise Vulnerability Management Services

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You have these already downloaded We have sent you a copy of the report to your email again. Cybersecurity risks are rapidly rising due to digitalization, cloudification, and remote work. According to Gartner, by 2025, 60% of organizations may use cybersecurity risk as a primary determinant in conducting third-party transactions and business engagements. Enterprises are spending millions to protect their applications and IT assets from vulnerabilities that lead to malicious attacks. They are grappling with the lack of security controls, unmanaged software, inaccurate scans, remediation controls, and a growing backlog of vulnerabilities. According to a study by industry analyst ESG, 69% of organizations have experienced an attack targeting an unknown, unmanaged, or poorly managed internet-facing asset. The reason is that conventional vulnerability management services focus only on listing software bugs that might be exploited. So, what can enterprises do? They must monitor their attack surfaces accurately, continuously update asset inventories, and identify vulnerabilities that require patching to reduce risks and stay ahead of attackers. Go beyond vulnerability management by curbing enterprise exposure to risks. With pre-built maturity assessment frameworks, industry-leading technology partners, and attack surface reduction services, TCS Enterprise Vulnerability Management Services enable enterprises to operationalize and manage next-gen preventive security programs. How it helps: Vulnerability management and asset discovery services: Stay on top of all the moving parts of applications, networks, open-source codes, and cloud applications through automated vulnerability assessments, dynamic discovery and classification of assets, remediation governance, and actionable reporting for the management of digital assets. Application security services: Cover automated tool-based scanning, manual checks, and triaging of vulnerabilities identified in applications in alignment with industry benchmarks. Integrate and automate the intersection of AppSec tools and the DevOps SDLC to detect and remediate vulnerabilities by managing security testing tool outcomes and building workflows for faster triaging and remediation. Smart remediation management services: Enrich and automatically unify vulnerability data through a smart remediation

approach, identifying security gaps for development, infrastructure, cloud, and security teams by: Penetration testing services: Conduct an active, controlled attack on enterprises' IT systems to identify security gaps and understand and address identified vulnerabilities. This involves penetration tests in the following areas: Security consulting services: Perform health checks to improve cyber maturity according to industry standards. Get a unified view of vulnerabilities to accelerate remediation. By leveraging TCS Enterprise Vulnerability Management Services, organizations can realize the following benefits: Gain 100% visibility and control with a single pane of glass view. Reduce up to 32% of efforts using playbooks and utilize tool-based, automated security reporting. Increase productivity by 37% with automated vulnerability triaging. Accelerate risk-based remediation, bringing about a 30-60% reduction of vulnerabilities. Identify exploitable vulnerabilities on critical assets. Comply with key standards, including SOC2, GDPR, FedRAMP, HIPAA, and OWASP Top 10, by leveraging region-based support. TCS Enterprise Vulnerability Management Service identifies, prioritizes, and mitigates software vulnerabilities from unforeseen risks. Safeguard your organization's digital assets from unforeseen risks. The following differentiators help our clients to keep their businesses up and running: A broad range of skilled talent pool to elevate application security and vulnerability management. TCS' CoE offers support based on its rich experience and research with global enterprises. Program governance, quality, and rigor in operation. Homegrown accelerators for security transformation, coupled with partner-led platforms for automation and remediation intelligence. Accreditations such as CREST for penetration testing services. Flexible and scalable engagement models for managed, shared, or pay-per-use services. Embracing a Zero Trust Model for Enhanced Enterprise Cybersecurity TCS Digital Forensics and Incident Response Services 7 Key Factors to Build Efficient Enterprise-wide Cyber Resilience Strengthening Cybersecurity with TCS' Managed Security Services Ready to secure your digital estate? Theme Font size Line height ======================

TCS' Managed Detection and Response services

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world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Managed security service providers (MSSP) frequently use manual monitoring and legacy investigation techniques, resulting in alert fatigue and inadequate remedies. However, legacy monitoring and response solutions are no match for sophisticated, AI-driven cyber threats. And enterprises today are more vulnerable to attacks, as they embrace cloud transformations and remote workforce models. To improve cyber resilience and protect their business, they must guard themselves against the following: Ransomware attacks, where cyber criminals encrypt a company's critical data and demand a ransom in exchange for not making it public. This is a common tactic attackers use to target companies.   Inadequate IoT security, such as poorly configured network security controls and running IoT devices in legacy environments, can slow down entire businesses in seconds, making it easy for hackers to launch attacks. Cloud workloads that are misconfigured and poorly implemented can become easy targets. Attacks on the blockchain employ well-known techniques like phishing, social engineering, attacking data in transit, and focusing on coding errors. Remote and hybrid working environments are exposed to new threats due to employee fatigue or lack of security awareness. Strengthen managed detection and response (MDR) to monitor and respond to cybersecurity threats. TCS' end-to-end MDR services use integrated platforms and add-on services to provide security threat monitoring, incident response, recovery, remediation, and threat hunting. Our services: Extended detection and response (XDR): Leverage a modern approach to managing threat detection, investigation, and rapid response compared with traditional methods. Integrated SecOps: Combine security operations center (SOC) and administrative tasks to provide a unified, SaaS-based XDR, along with artificial intelligence (AI), modernized security information and event management (SIEM) analytics, and machine learning (ML) capabilities. It streamlines data ingestion security processes and automatically correlates data across multiple security stacks. Endpoint detection and response (EDR): Enhance incident investigation and response, end-to-end coverage to strengthen endpoint security and protect against sophisticated attackers

and adversaries. Hypothesis-driven threat hunting: Empower SOC hunters to proactively look for unknown threats using an exclusive query library. Industry-specific policies and remediation procedures: Improve cyber resilience with customized and accurate threat resolutions. Additional services include: Deception as a Service: Distract cyber criminals and secure critical enterprise assets by diverting them with tailor-made breadcrumbs, baits, and lures using the TCS Deception platform.   Anti-phishing service: Get real-time phishing protection with TCS Anti-phishing platform, a one-stop solution for Office365, Google Workspace, and Lotus Notes. Breach and attack simulation (BAS) service: Run simulations and tests to detect vulnerabilities. Elevate internal and external defenses with TCS' BAS, a fully automated and customizable solution providing comprehensive visibility and reporting.   Cyber risk scorecard (CRS) service: Uncover risks from three dimensions—risk quantification, technical cyber rating, and compliance correlation. Vulnerability management: Address security-related business challenges with TCS Enterprise Vulnerability Management Services' pre-built assessment frameworks and aligned services.   Cyber threat intelligence: Get early warnings and signals on cyber threats with our in-built threat intelligence framework, technical analysis tradecraft, geopolitical and cultural analysis.   Retainer service for rapid forensics: Identify, collect, analyze, and utilize digital evidence with TCS' Digital Forensics CoE labs. Ascertain the root cause of security breaches and get predictive recommendations to mitigate threats. Ransomware readiness assessment: Leverage our consulting services to check your organization's readiness to detect, protect, respond, and recover from ransomware incidents. Fortifying cybersecurity with 360-degree visibility, automated response, and remediation. Improve mean time to detect (MTTD) and mean time to respond (MTTR) by 30% with automated incident remediation. Reduce TCO by 40% through integrated SecOps and collaborative tools. Elevate cyber defense with predictive intelligence to proactively respond to threats with TCS' Cyber Defense Suite portal. Decrease false positives by automating tier 1 effort, incident triage, and remediation. Combine actionable threat intelligence of your dynamic information technology (IT) and operational technology (OT) landscape to fend off attacks. Mitigate risks and uncertainties with our cybersecurity expertise and experience By collaborating with TCS, enterprises can leverage our key differentiators: Flexible and scalable engagement models that are dedicated and co-managed. Pay-as-you-go pricing model as compared to the fixed pricing model.   Skilled and certified MDR security professionals across 13+ threat management centers (TMCs).   Bespoke cybersecurity solutions to address contextualized industry needs. Consulting-driven next-gen MDR transformation, maturity, and compromise assessment. Continuous validation of purple teaming, continuous testing, and adversary simulation. Leverage 3,000+ contextualized playbooks for quick remediation of 10,000+ incidents.   Focused research and innovation to design futuristic cybersecurity solutions.   Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Securing Digital Assets with Enterprise Vulnerability Management Enhancing Cyber Resilience of IoT and Industrial Environments Ready to secure your digital estate? Theme Font size Line height ======================

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Dr. KPS Sandhu Head of Global Strategic Initiatives, Cybersecurity You have these already downloaded We have sent you a copy of the report to your email again. 1. Generative AI Creates Security Opportunities and Pronounces Threats Generative AI and machine learning are increasing the frequency and complexity of cyber-attacks, creating new pressures on companies. This technology can allow cybercriminals to launch sophisticated and stealthy attacks like deepfakes or self-evolving malware, compromising systems on a large scale. To counter these advanced threats and fight fire with fire, enterprises must use AI-driven cybersecurity This technology has the potential to transform the industry by improving enterprise posture through automated hardening of configurations and compliance, overcoming micro-segmentation challenges, fine-tuning least privilege access, enhancing reporting and more. It can be used to significantly improve security operations in many ways, such as, identification of false positive alerts with application of supervised machine classification and active learning, detection of advanced attacks like DNS tunneling with the help of machine learning based payload analysis and traffic analysis, and discovery of new threat samples using deep-learning supervised classification models. As threats become more eminent and dangerous, companies can consider two distinct methods to uplift their cyber resilience programs which we believe will see prominence in the future: cyber insurance and real-time threat dashboards. Currently, leaders in cybersecurity understand the need to prepare for generative AI threats and opportunity—with insurance becoming less of a choice and more of a necessity. As a core precautionary method, a centralized visibility dashboard is a tool we expect many companies to invest in as it can plan, track, and react to attacks while giving insights into real-time cyber risks. We believe AI and machine learning will be used more widely to help protect data across hybrid cloud environments by identifying shadow data, monitoring data access, encrypting data in transit and at rest, and alerting security teams about potential data breaches. In the future, user authentication, AI and machine learning will continue to grow in influence. Leaders can use new technology to help balance security with user experience by analyzing the risk of login attempts, verifying users through behavioral data, biometric data, or multifactor authentication. Additionally, malware can be detected and blocked by analyzing file characteristics, network traffic, user behavior, and other indicators of compromise. As enterprises embark on this journey, they should prioritize employee education on the secure use of AI tools, ensure security of data transmitted to and from AI tools, have stringent access control and monitoring, and continuously harden models to mitigate potential security vulnerabilities. 2. Spotlight on Cyber with Increased Focus at the Top, Emphasizing Pressure on CISO Role Due to increased cyber-attacks and opportunities for breaches, we expect C-suite to become increasingly involved in cyber risk-related decisions. According to reports, with increased executive accountability and heavy fines for violations, boards will focus on cybersecurity regularly and could take actions like creating a dedicated cybersecurity committee, engaging with external advisors, and requesting regular reports from CISOs. Legislative changes such as the EU's NIS2 Directive and rule changes by the Securities and Exchange Commission (SEC) around material cybersecurity breaches will affect board and cyber organisation structures while influencing decisions about investing in security access management, cloud security, data security, This has elevated

the office of the Chief Information Security Officer (CISO), who have traditionally operated from a technocrat mindset of managing tactical risks, putting out fires, and enforcing compliance to being included in business strategy decisions and driving cybersecurity-enabled competitive advantage. Now, these leaders increasingly report to the board and have more autonomy to make investment decisions. Boards will have a dedicated cyber committee, and specific C-suite cyber performance metrics, while also requiring companies to mandate cybersecurity education and training programs as further ways to mitigate cybersecurity risks and integrate cybersecurity best practices into any company-wide strategy. 3. A More Regulated, "Sovereign Cloud" Becomes Standard in Global Business We expect the adoption rate of sovereign cloud to grow significantly in the coming years as more countries and regions develop data sovereignty laws and initiatives. When utilizing this cloud, companies can safeguard valuable data and systems from unauthorized foreign access on a country or local level. Data privacy regulations and the geopolitical landscape are constantly changing, and these affect the control and flow of data. The coverage of these laws is fast expanding and by end of 2023, nearly 5 billion people responsible for nearly 70% of global GDP will fall under a privacy law. The stringent stance taken by countries against privacy violations with huge fines being levied on enterprises makes data sovereignty a key imperative. By adopting a sovereign cloud solution, organizations can reduce the risk of data breaches, espionage, sabotage, while enhancing trust with investors, customers, and regulators. The current adoption rate of sovereign cloud varies depending on the sector, industry, and geography. According to a survey by IDC in 2020, 40% of European organizations have already adopted sovereign cloud solutions, while 31% plan to do so in the next two years. The adoption rate is higher among public sector organizations (49%) than private sector ones (37%), and among organizations in France (54%) and Germany (51%) than those in the UK (29%) or Italy (28%).) Some examples of sovereign cloud solutions are Gaia-X: a European project that aims to create a federated data infrastructure that ensures data sovereignty, security, interoperability, and portability for European cloud users and Azure Government: a Microsoft cloud service that offers dedicated regions and compliance certifications for U.S. federal, state, local, and tribal government entities, as well as their partners. Alibaba Cloud is a Chinese cloud service that operates multiple regions within China and complies with Chinese laws and regulations for data security and privacy. 4. Expanded Digital Ecosystems Leave Room for Attack, Altering Vendor Strategy As business models involving digital ecosystems (complex networks of businesses, individuals and various systems and stakeholders that use technology to interact) become more sophisticated, we expect cyber threats to be more imminent. Right now, it is no longer feasible to address every threat identified in an organization's digital ecosystem. Because of this, it is recommended that enterprises adopt a continuous approach to threat management which involves expanding threat assessments to include integrated supply chains while consolidating vendors. As cybersecurity threats emerge and evolve, organizations often respond by adding more security products and partners, but this can ultimately work against their security goals. To solve this, many organizations are considering opting for vendor consolidation so that security posture can also be improved. In fact, 75% of organizations are pursuing a security vendor consolidation, which is

a substantial increase when compared to figures of 2020 when it was only29%. The rationalization of the cybersecurity vendor portfolio is urgently needed to provide the security team with an efficient platform to manage risks effectively across the broad threat landscape. 5. While Talent Gaps Continue to Widen, New Hiring Strategies Can Prevail There are over 700,000 job openings in the U.S. and according to some estimates, there is a need for more than 2.7 million cyber professionals globally. The talent gap in cybersecurity has created a dire need for skilled and qualified people to prevent, detect, and respond to novel and ever-growing cyber threats and incidents. To combat these rising challenges, companies should consider hiring in-house specialists to bolster internal teams or outsource this work to large external resource companies (consulting firms, cloud providers) to reduce costs and risks. If hiring is not imminently possible, administrators should opt for a managed services provider. The partner can then implement and operate a unified security platform using automated and streamlining processes to strengthen defences against advanced threats while providing complete visibility into the security posture of the enterprise. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. ======================

Cybersecurity needs board-level focus, holistic innovation

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senior business leaders are deploying AI, even though they are aware that it introduces significant risks, including shadow AI, adversarial attacks, data loss, and adversarial prompting. Managing AI risks hinges on increasing visibility, robust enterprise policies, security by design, and continuous monitoring, Sandhu said. While the risks of AI are well known, he sees scope for it to enhance cybersecurity, such as using methodology that labels AI-generated text to help identify deep fakes. AI also offers powerful tools to enhance cybersecurity through automation, threat intelligence, and compliance management. A structured approach is recommended, firstly, by identifying high-impact use cases for quick wins. This might involve improving L1/L2 efficiency or enhancing context-aware threat intelligence. Next comes leveraging existing AI capabilities from tools such as Sentinel, IBM, and Palo Alto. Then, conducting a proof of concept to determine key use cases and developing tailored solutions, before finally integrating the developed solutions. Cloud services pose several cybersecurity challenges for businesses around data privacy, confidentiality and potential breaches, and ensuring compliance with regulations. Where businesses use cloud-based services that they do not own or manage, the division of responsibility raises challenges and can exacerbate risks. If a critical service provider experiences a breach, it could severely impact their operations. It is not uncommon for cloud providers to be responsible for securing the underlying cloud infrastructure while customers are responsible for securing their data, applications, and access management. Misunderstandings about this division of responsibilities can lead to security gaps and unaddressed risks. Robust security controls, thorough due diligence on cloud providers, data encryption, and incident response plans are crucial when relying on cloud services. Human oversight remains critical to ensure that AI operations function as intended without being compromised. This relies on the implementation of robust governance frameworks that monitor and control the behaviour of AI systems. Strong processes and a well-established system of checks and balances are also vital for the early detection of any compromises or malfunctions in AI systems. Given the sophisticated capabilities of AI, including the potential to develop deceptive behaviours, good governance becomes even more crucial in maintaining integrity and reliability. The CISO role now extends beyond technical responsibilities to encompass broader risk management and strategic engagement with the board of directors. As cyber threats continue to escalate, all board members need to be educated on, and actively involved in, shaping the organisation's cybersecurity strategy. This requires a deep understanding of the technical intricacies and the non-technical aspects of risk, such as reputational damage and regulatory implications. Effective CISOs must align cybersecurity initiatives with overarching organisational goals and ensure continuous updates to the board on emerging threats. Regulatory measures such as those introduced by the US Securities and Exchange Commission are forcing boards to take a more proactive stance in managing cybersecurity, while the UK's draft Code of Practice for cyber governance reinforces the need for enhanced board-level engagement and accountability. The speakers emphasised the critical need for organisations to prioritise upskilling and retaining cybersecurity talent. Developing a passionate and skilled cybersecurity workforce is paramount, given the significant global shortage of professionals in this area and the intense competition for talent. This is exacerbated by regulations that create a high

demand for specific skills across sectors. Investing in building cybersecurity skills and capabilities is one way to mitigate this, the panellists said, as is nurturing young talent, particularly women, who are underrepresented in cybersecurity. It is no longer sufficient to simply follow standard frameworks; every business needs to tailor guidelines to fit its operational landscape. Understanding the implications of the compromised situation of an asset and how it affects business operations and reputation is crucial to build effective cyber resilience. The speakers also stressed the need to prioritise the human elements of cybersecurity strategies, including threat management, detection, response, training, awareness, talent development, and data security. There was no doubt from these discussions that cyber resilience in today's world demands a comprehensive strategy that incorporates technology, processes, and people. By focusing on these areas and creating robust ecosystems that straddle industries and follow established standards, organisations can build strong and resilient cybersecurity capabilities that are fit for the future Managing AI risks hinges on increasing visibility, robust enterprise policies, security by design, and continuous monitoring. Dr KPS Sandhu Data and Cybersecurity to Fight off Cyberattacks Strengthening Cybersecurity with TCS' Managed Security Services Cybersecurity – Safeguarding the Future Cybersecurity: The only future-proofed career? Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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Enhance cyber resilience with zero trust security

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beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Narayan Sharma Global Head, Identity Access Management CoE, Cyber Security, TCS Raghvendra Singh Global Head, Cloud Security CoE, Cyber Security, TCS You have these already downloaded We have sent you a copy of the report to your email again. An organization's security system must be based on five tenets. Companies interact with external entities and access outside systems every day. This is a must-do to collaborate, survive, and reach digital customers— but it also introduces new vulnerabilities. According to the US Treasury, enterprises forked out over $600 million in ransomware-related payments during the first half of 2021. One thing is clear: every organization's security system should be stronger than ever to ward off threats. And these systems must be based on five tenets. Zero-trust security and cyber resilience solution is an upgraded model–where nothing is left to chance and the architecture itself is context-aware, risk-driven, and adaptive enough to counter modern threats. This type of model can enable businesses to confidently pursue digital transformation without the fear of security breaches and reduce time-to-value. Zero-trust security is centered on preventing unauthorized access to digital resources. We suggest implementing an organized control system for every access request using a trust broker that validates authorization and authentication at every level. But a trust broker is just the start. The following best practices will help you on your zero-trust security journey: Organizations can elevate their cyber defence by implementing an end-to-end zero-trust security model. While the above-listed principles form the building blocks of zero-trust security, implementing them enterprise-wide can be complex—particularly while transforming existing cyber security practices and culture. Follow these best practices to mitigate common roadblocks: Focus on cyber hygiene: Maintain basic cyber hygiene before planning zero-trust security adoption. The basic six controls outlined by the Center for Internet Security (CIS) can be a good starting point. Holistic zero-trust strategy: Assess, reuse, replace, and/or rebuild existing security solution options. Prioritize adoption basis business requirement, transformation roadmap, availability of security controls, investment, and enterprise threat exposure. In-built security controls: Zero-trust security must be integrated with overall enterprise transformation journey to ensure effective implementation and avoid being pushed back as an afterthought. Continuous review and enhancement: Protect your

ecosystems by setting up regular review cycles. Frictionless user experience: Ensure a highly responsive trust broker solution component while evaluating complex access policies in real-time. Stay one step ahead of cyber-attacks with a phased approach to zero-trust security. Every organization is unique with varied security needs. A one-size-fits-all approach to zero-trust security implementation isn't viable. However, a phased approach—can ensure you stay one step ahead of cyber-attacks. Step 1 - Maturity assessment Understand the starting point of your zero-trust journey – a business unit, IT department, or enterprise level. Assess your resource visibility, maturity of basic security controls, threat exposure, existing technology landscape, etc., to gauge your maturity level. Step 2 - Strategy, architecture, and roadmap definition Carve out a broader strategy and plan for zero-trust security: Draft an architecture blueprint to meet target state maturity Reuse existing tools to avoid unnecessary procurement Carefully evaluate new tools if existing tools are insufficient Prepare a business case Outline phases and clear timelines Developing roadmap for strategic and tactical initiatives Step 3 - Foundation phase (tactical initiatives) Address the gaps in the six Center for Internet Security (CIS) controls and pick easily addressable issues from the strategic stream: Step 4 – Strategic implementation phase With cyber hygiene addressed in Step 3, organizations should embark on strategic initiatives, which will enable incremental implementation of advanced cyber security controls (for instance, privileged access management, risk-based access governance, micro-segmentation, etc.). These integrated set of advanced and granular controls would ensure realization of zero-trust principles mentioned above. Duration for each of the above steps vary across organizations depending upon their size and complexity. The overall zero-trust journey in general would span from one to three years. Organizations must take a holistic, pragmatic approach to realize value from zero-trust. For example, during the ongoing COVID-19 crisis, organizations that had mature zero-trust security controls seamlessly enabled secure remote access to ensure business continuity. Achieving zero-trust maturity today can prepare you for tomorrow's next big disruption. TCS helps energy firm modernize its security operations center 7 Key Factors to Build Efficient Enterprise-wide Cyber Resilience How Modernizing Cybersecurity Empowers Business Growth Embracing a Zero Trust Model for Enhanced Enterprise Cybersecurity Looking to turn purpose into action? Theme Font size Line height

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Managing multi-cloud security, proactively

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How modernizing cybersecurity empowers business growth

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artificial intelligence (AI) and advanced analytics — are enabling purpose-driven, resilient and adaptable enterprises. Yet for many companies, IT cybersecurity principles and tools are still an afterthought, continually trying to catch up to the technology disruption. As a result, while business understandably focuses on rapidly pushing new products to market, necessary security standards and governance frequently lag behind. That leaves vital data vulnerable and critical operations at risk. More important, no longer is the threat only to corporate, government and personal information. With the widespread adoption of internet-of-things capabilities into our daily lives — including advanced healthcare solutions — even human lives can be at risk. The cyberattack risks faced by companies using outmoded security methods have been intensifying in recent years. But those challenges have increased dramatically with the advent of the COVID-19 pandemic. With so many key employees now working remotely, sensitive data needs to be shared outside a company's walls. This includes employee data, intellectual property, corporate financial data and other proprietary information. It also includes data on customers, their purchases and the performance of products in the field. Cybercriminals have seized this opportunity by launching phishing schemes that lure email users to click on malicious files. Many of these schemes have been COVID-19 related, and they have ranged from audio files impersonating voicemail targeting Office 365 users[1] to emails purporting to be from company executives. Meanwhile, the number of remote desktop protocol (RDP) servers exposed to the internet has risen sharply from 3 million in January 2020 to more than 4.5 million in May, and attacks targeting them were up more than 300% in the United States in both March and April.[2] Further complicating the job for security professionals, the ubiquity of bring-your-own-device (BYOD) work protocols allows cyber attackers to leverage outdated and unpatched operating systems or insecure apps on employee machines.[3] For example, a vulnerability recently discovered in the popular iOS Mail app may have been exploited for two years (and possibly nearly eight).[4] Companies also must defend against man-in-the-middle attacks, in which an attacker secretly gets in between a user and an accessed web service. A compromised Wi-Fi system, for example, could let an attacker harvest any information a user sends, including passwords. Companies also face newer, more sophisticated and pervasive threats. There is a rising incidence of zero-day threats exploiting unpatched software vulnerabilities. Additionally, malware attacks, including keyloggers and ransomware, are leveraging and paralyzing corporate networks. More and more malware seeks to connect IoT devices to botnets that can then create massive distributed denial of service (DDoS) attacks against companies, governments and institutions, resulting in some of the biggest shutdowns across industries ever seen.[5] In the face of so many threats, companies must secure a vast array of vulnerabilities. Employees themselves can pose risks, whether through poor cybersecurity hygiene or malicious intent. Deeply integrated partners and suppliers, including third-party vendors and their suppliers, can also open the gates to criminal activities. For instance, the breach of 110 million Target customers' personal and credit card data began with malware used to steal login credentials from an HVAC subcontractor. As companies depend on interoperability via the digital ecosystem, the complexity of the threat landscape is deepening. Criminals can also exploit numerous non-human entities, including (but not limited to) robots, microservices, automated

functions, and technologies with system access, such as IoT devices and operational technology. Indeed, there is a multitude of points of weakness in corporate IT systems: outdated and unpatched software; missing or insufficient encryption; insecure SQL databases; data access points (such as web-based applications) and website input fields that allow JavaScript, ActiveX, and other code submissions. With so many vulnerabilities to exploit, it's no surprise the number and severity of attacks is on the rise. These have intensified in some of the countries most affected by the pandemic, such as the United States and Italy. Marriott, which has been hurt by the sharp downturn in travel due to the COVID-19 pandemic, was attacked in April 2020, compromising the data of more than 5 million guests,6 its second major cyberattack in two years. Also in April, Energias de Portugal, one of Europe's largest electricity and gas providers, sustained a cyberattack with thieves demanding $11 million in ransom.7 In some cases, criminals are targeting organizations integral to the pandemic response. Hacking attempts at the World Health Organization coronavirus testing lab doubled after the crisis began. A hospital with one of the Czech Republic's largest COVID-19 testing facilities had to shut down after a cyberattack. More recently, REvil ransomware has been used to attack everything from vaccine researchers to unpatched VPN servers. (In 2019, cybercriminals deployed REvil against data centers, managed service providers, local Texas governments and dentist offices.) The number of security breaches is bound to grow, in part due to the rise of IoT. While IoT hackers primarily exploit router vulnerabilities, they are increasingly targeting hardware that may have never been meant to receive an IP address: webcams, printers, and even electricity meters and gas station pumps. This risk will intensify as 5G makes IoT more pervasive and enables phones to be used as full-scale Wi-Fi networks. Consequently, as the digital ecosystem continues to evolve, and meeting the growing need for frictionless interactions with customers may lead companies to compromise on security, the philosophy and practice of cybersecurity must change. A blanket lockout of all nonhuman identities and external users puts security inside the castle and opportunity outside the moat, where opportunities may be lost and cybercriminals may thrive. That sort of comprehensive lockout demands exceptions if business is to continue, and exceptions create vulnerabilities unless they are part of a robust, modern system designed to be adaptable, risk-based and context-aware. And that is where cybersecurity must go. Cybersecurity has long been due for a rethink. It transforms the concepts of usernames, passwords, and IP addresses, turning them into practical elements that support their underlying functions. The emerging digital ecosystem only became possible as the traditional elements of computing — mainframes, operating systems, applications, and networking — became atomized, abstracted and virtualized. Accordingly, to protect themselves and become more resilient in the face of cybercrime, companies need to consider the broader ecosystem and apply adaptable cybersecurity. Many security practices are still based on the old concept of trust but verify, yet today data and applications extend far beyond the company's walls and blind trust is a luxury that no business can afford. Instead, cybersecurity should focus on authenticating identities and devices in the context of requests for any protected resource. Such resources broadly include anything that would constitute a risk to the business if it were compromised. This means data, networks and workloads, but also their data flows and the underlying infrastructure that supports

them. Legacy security is not robust enough to secure a contemporary IT ecosystem consisting of remote workers, workplaces, partners and customer interactions, or to protect the data employees may need to access at a remove. In the past, security was based on known employees working from company offices or on a laptop using a VPN. Security functions focused on external threats. Internal errors, threats and leaks were not taken as seriously. When only company desktops, printers, and on-premises data centers required permissions, that kind of security could manage the challenge. But new vulnerabilities arrive with each advance in technology. Not only are employees using their own devices — smartphones, laptops, tablets and desktops — but companies depend on the operating technology of internet-connected products. Moreover, individual departments are frequently deploying their own robots and other automated entities, outside the umbrella of corporate IT, and their priorities and security diligence may be inconsistent. That's why security must be addressed in the corporate IT architecture. Under the digital ecosystem, rather than depending on a user's email address and password to grant access to a secure local area network, context should hold the key to access. Context means considering a variety of factors. For instance, what identity needs access, and what is its status? What device is being used? How secure is it? Is it managed? From where is the resource being accessed, both physically and in relation to the network? And when was the access initiated? To deploy security that enables an enterprise to focus on its purpose, a zero trust security model must be applied. Zero trust protects against unauthorized access to digital resources by enforcing controls that are granular, risk-based and adaptive for each and every access request. Zero trust relies on six core principles and associated technologies. 1. Never trust. Always verify. Today, nearly all work takes place in a networked environment — which is to say, a potentially compromised environment. Given the profusion, variety and evolution of threats, the secure approach requires validation for any identity before access can be established. 2. Purpose-driven access Earlier methods, such as a "one-time password" sent to an email address via internet protocols, no longer suffices; they're too prone to compromise. Instead, access must be contextual and time-bound: "just enough" and "just in time" to deliver required business outcomes. Password-less multifactor authentication (MFA) is both more secure and generally faster for users then multiple password resets and insecure email delivery. 3. Continuous risk-discovery, real-time treatment A "find to fix" approach — automated, with greater agility and operational rigor — should replace the long cycles of audit, testing and remediation most IT organizations have operated under. The purpose of cybersecurity should be to manage risk to enable business. But most security solutions focus on compliance rather than risk. While compliance is always necessary for regulatory adherence, reporting, and security hygiene, real technology risk is contextual. Only measures that dynamically calibrate controls can address the threats. Access governance must be driven by the risk index of the resource and the risk level of the identity's context. 4. Security by design As disruption — enabled by new technology and new business models — increasingly becomes the differentiator for growth and capturing market share, the importance of delivering sustainable, secure products and services to end users becomes all the more important, particularly for any innovation touching human lives. Thus, because cybersecurity must be central to the customer experience as well as

business continuity, its position has moved to earlier in the development cycle to ensure its priority and enable the delivery of flawless projects. 5. Information-centric security Rather than focus on their IT, most forward-thinking enterprises aim to focus on their core business, even going so far as to shed assets unrelated to their purpose. Thanks to the proliferation today of cloud-based models for many of their computing needs, businesses can instead center their proprietary information and expertise — their data and its uses — at the core of the business, around which IT services can secure the perimeter. 6. Security as culture As the saying goes, a chain is only as strong as its weakest link, and a company's data is only as secure as its most vulnerable vector. Beyond making cybersecurity an enforcement issue, a culture of security makes it everyone's responsibility, empowering every user to sense and act on cybersecurity matters. To this day, most companies' cybersecurity solutions are undifferentiated from most other companies'. While industry standards and state-of-the-art approaches should be the basis for any technical solution, only a business solution can enable the day-to-day work and unique exigencies of a particular company. Based on TCS' work with nearly 500 companies and 7,000 cybersecurity professionals around the world, we have developed an approach to cybersecurity that is both resilient and adaptable. Insight-led intelligence for human and automated decisions - A deep and comprehensive view of the threats contextualized to a company's business provides the start to ensuring business priorities, followed by identification and measures of risk, complete insight into the highest value assets and processes to prioritize cybersecurity efforts, and a clear strategy for deploying both proactive and reactive capabilities to achieve cybersecurity objectives. Keeping bad (or reckless) actors at bay Access to protected assets should require context — the who, what, why, where, when and how definition of a particular request or connection. For example: Once access for an asset is thus defined, only then can it be micro-segmented and governed in a zero trust context. Scalable and adaptive access - It may be an understatement to say that, in the face and wake of the COVID-19 pandemic, "work" has undergone some changes. Age-old concepts around workplaces — location dependency, fixed local hours of working, presenteeism and high-touch governance, to name a few — are giving way to a distributed model of the talent ecosystem to maximize business opportunities.8 It's a trend that was accelerated by the pandemic, but it was already becoming an increasingly useful model of working for companies emphasizing their expertise over their real estate. Even as some regions and offices began to reopen, working from home was announced as a permanent strategy or employee option for many companies' workforce management policies and practices. Such a forward-looking approach to work requires an equally forward-focused security strategy, however. This involves establishing scalable and adaptive access independent of device identities and locations. Legacy security solutions such as VPNs cannot adequately accommodate remote workforces. Instead, multi-factor authentication methods and remote-access-as-a-service solutions can address changing security needs as they occur and as the instances for such access increase. Another essential layer of protection covers agile methods and DevOps by embedding and automating identity, access, threat, and vulnerability management within the development environment. DevOps teams often need to use sandboxes, cloud platforms and untested or open-source software. By securing the containers that hold their work, and by

securely managing the "secrets" used to authenticate across the different containers, tools, platforms and applications involved in development and testing, DevOps teams can navigate their environment more freely while minimizing security risks. Real-time detection and immediate action - In addition to prevention and protection, companies need to act in real time — the last line of defense. This means plugging vulnerabilities and responding to attacks in an agile fashion. It means leveraging the existing security features of products or adopting quick service-based security options from trusted partners. To address threats in a timely manner equal to the risk — whether it's instantly or over time — companies can find partners that can repair weaknesses and cover compromised points. In addition to access by humans, companies need to secure the AI, machine learning, automation and analytics they deploy, which are themselves essential to a strategic cybersecurity architecture. AI and machine learning enable real-time detection, instant investigation and immediate response to cyber threats. Secure orchestration and automation provide the advanced capabilities to automate the response to live breaches and advanced persistent threat scenarios. Resiliency for business continuity - Finally, companies must design and implement continuity, backup, and recovery plans with zero latency for critical infrastructure. This is not only essential to risk management but for compliance as well. Indeed, governments are now issuing mandates for critical IT infrastructure. There are two main obstacles to risk-focused, context-aware security: budget and the pressures of innovation. While cybersecurity is generally understood as necessary to business operations, investing in point solutions to address a specific cyber risk is not a sustainable strategy, given the rising variety of threat vectors and vulnerabilities. Instead, today's cutting-edge cybersecurity is consumption-based. By leveraging cybersecurity-as-a-service, a company can optimize its cash flow while gaining access to the latest defenses, with relevant capabilities usually updated at no additional cost (unlike many commercial off-the-shelf version releases). Moreover, this approach makes it possible to add other services as needed at bundled rates. These as-a-service offerings may include remote access, identity management, vulnerability management, threat intelligence, digital forensics, encryption and multifactor authentication, among others. Moreover, even though compliance-focused cybersecurity may be regarded as a must-have, it has often been viewed internally as a brake on collaboration, innovation and transformation — a necessary evil for the business. In contrast, the adaptable nature of risk-focused cybersecurity reverses that perception (and, sometimes, reality). Leading-edge cybersecurity practices and services are adaptable enough to meet the demands of fast-moving teams and emerging opportunities. By removing many of the one-size-fits-all constraints of legacy solutions, cybersecurity can instead enable development, collaboration, iteration and modernization in ways that were previously unavailable. Gaining maturity in cybersecurity is a journey. Given the evolving nature of business and forward-looking enterprises (to say nothing of enterprising criminals), the process is perpetual, although the cycle of discovery, definition, development, and delivery gets automated and intelligent over time as a company's security culture and the tools it uses grow and adapt to the changing threats and opportunities. Discover A thorough assessment is the first step to helping business leaders understand their readiness for modernizing cybersecurity. Understanding an

enterprise's current-state security landscape — its actual threat profiles, business risk and current security landscape — is foundational. Absent such knowledge, a company is left in a purely reactive posture, plugging breaches as they occur. Define With a discovery outcome in hand, a directional roadmap can be created to achieve a higher state of security maturity. The roadmap can identify the initial goals that can be implemented in the short term and whether existing tools can be reused to meet the objectives or if new tools are needed. Finally, the roadmap establishes a plan for the tactical and strategic phases of implementation based on the current threat level and the organization's vision of end-state maturity. Develop Assuming no urgent threats require extensive and immediate attention, the tactical work to shore up defenses can then be undertaken, often with a scrum team comprising a few allocated resources. Other areas defined in the roadmap may present less immediate risk to sensitive data but are relatively easy to address so their solutions should be implemented at this stage, rather than when they metastasize into a problem. Many if most lay the groundwork for achieving the more strategic phase of cybersecurity maturity. Deliver to scale The work to design and deploy security across an enterprise to support its core purpose and growth — and even its expansion into new markets and sectors, if that's part of its business strategy — must be delivered in a way that can scale both the work and horizontally across functions and operations. To accomplish this, the program to deploy strategic security can expand to multifold streams of scrum teams delivering continuously with accelerated agility to make higher levels of cybersecurity maturity a reality. There are several initiatives an enterprise might undertake during the strategic phase. One is micro-segmentation, a granular separation of sensitive resources, regardless of their physical location. This can take place at the network, hypervisor or host levels. A second is zero trust network access (ZTNA), which entails establishing a software-defined perimeter that helps secure and selectively expose sensitive applications only to authorized and authenticated identities. Context-aware authentication and fine-grained authorization based on risk can be developed at this stage, as well. A company can also implement just-in-time provisioning to grant access only when and for as long as it is needed, ensuring that privileged identities do not acquire permanent access. Finally, a company may consider deploying security analytics to extend their security incident and event management capabilities with advanced tools that analyze the behaviors of users and entities such as devices, applications, services, data repositories, and anything else with an IP address. Most enterprises are continuously investing in new tools and technologies to mitigate business risk. However, most such decisions today are still taken in reaction to peer pressure among the C-suite or to solve a specific problem. Leading-edge, risk-focused and context-aware security is increasingly available as a service, however, rather than as a one-size-fits-all software solution frozen in time or version number. Forward-looking companies take a never trust, always verify approach to access to their data and processes, acknowledging that threats evolve and require the capabilities available in advanced technology — such as AI, automation, cloud computing, and Agile development — to address them. Through leveraging such services, a business can embrace a more resilient and adaptable cybersecurity model, positioning itself to survive new challenges and take advantage of the opportunities in emerging digital ecosystems. 1. PhishLabs, "COVID-19 Phishing Update: Voicemail Attacks

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Automation is your cloud protection keystone

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the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Raghvendra Singh Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 7 MINS READ Raghvendra Singh Global Head, Cloud Security CoE, TCS You have these already downloaded We have sent you a copy of the report to your email again. Organizations that take the easy route of cloud adoption by lifting and shifting apps and data frequently use manually configured security policies. The sheer complexity and heterogeneous nature of multi-cloud make it challenging to avoid inadvertent human errors in configuring security policies. Downsides to such glitches are aplenty—security blind spots, risk of data theft, ransomware attacks, and the need to pay hefty compliance penalties. Automating cloud security configurations and policies helps your security team focus its time on proactive security rather than reacting to an incident. Automation can be task-based, policy-driven, or cognitive. Task-based automation eliminates the need for manual security assessment and reporting. Organizations can create data classification policies without errors and in quick turnaround times. Policy-driven automation helps organizations define, share, and enforce enterprise-wide security policies. This allows enterprises to overcome human errors in granting access and ensures proper reporting of incidents. Cognitive threat management helps enterprises leverage machine learning algorithms to flag anomalies, detect risky user behavior, classify potential security incidents, and perform remediation automatically. Here are eight actionable insights to simplify and secure your cloud automation journey. For cloud automation to be effective, you must give equal weight to process, policy, and technology. Otherwise, you could run the risk of building an unmanageable technology stack. It's crucial to maintain proper cyber hygiene by performing thorough cleanup before automating. Additionally, the cloud, infrastructure, and security teams should work together to eliminate information silos and stay focused on a common goal. Lastly, it would help to establish processes for

continuous governance of their automation efforts. Such methods ensure that your IT teams catch any discrepancies or redundant technologies early in the cycle, thereby keeping the automation efforts effective, seamless, and practical. Securing GenAI models with a rigorous cybersecurity defense Building Resilience and Combating Threats in Cybersecurity with AI Customized Machine Learning Combat Cyber Attacks Fortifying Industrial Environments with ICS Security Services Theme Font size Line height ======================

Making 5G secure for real-time streaming

TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Debasish Das Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cybersecurity / Blog Debasish Das Enterprise architect, Cyber Security, TCS You have these already downloaded We have sent you a copy of the report to your email again. The growing popularity of OTT services, led by Netflix and Amazon Prime, is attracting more players who are ready to leverage 5G speeds that could democratize real-time streaming. Advanced OTT streaming capabilities with improved quality of service (QoS) and quality of experience (QoE) are becoming a reality as 5G

is capable of supporting up to one million devices per square kilometer. Breakthroughs in the radio access network (RAN) layer and core mobile network subsystems will enable further proliferation of 5G streaming applications. Emerging technologies such as mmWave, MIMO, mobile edge computing (MEC), and Cloud-RAN (C-RAN) are paving the way for next-gen streaming applications for 5G-powered use cases across industries for immersive learning, augmented and virtual reality, next-gen remote healthcare and more. However, 5G-enabled machine-to-machine (M2M) and device-to-device (D2D) communications running on millions of devices and low-powered sensors mean a significant expansion of the cyber security threat landscape across the content streaming value chain, from upstream content origin servers to the last mile streaming devices. Relaying, off-loading and sharing of content, besides proximity-based applications such as vehicular communications, real-time video surveillance, and video analytics on the edge, are all facing a higher risk of breach and exploitation by cybercriminals. Studying the overall OTT and content streaming architecture to evaluate susceptibility to attack, attack patterns, and modes in deference to the expanding cyber threat landscape is pivotal in developing appropriate cyber resilience strategies to mitigate risks and protect vulnerable assets. Understanding five critical attack vectors The streaming applications landscape is vulnerable to cyber-attacks such as: Leveraging machine-first automation to enable a combination of prediction, prevention, and protection layers across the streaming ecosystem can significantly mitigate cyber-attacks targeting next-gen streaming platforms and applications. Proactive, predictive monitoring for potential attack vectors across the streaming value chain is crucial to secure the trust boundaries against cyber-attacks. Elevate your security posture The integrated security triad approach, built on three dedicated layers for prediction, prevention, and protection, can elevate organizational cyber defense and resiliency against attacks against streaming platforms. Prediction layer Huge volumes of streaming content consumed over millions of devices and applications worldwide render it impossible to use conventional techniques to predict cybercrime hotspots. Analytics-driven solution accelerators can help overcome this challenge. The prediction layer will leverage realistic threat models to predict security hotspots in the 5G streaming ecosystem level and appraise a gamut of 5G streaming vulnerabilities across smart CCTVs, autonomous cars, advanced set-top boxes, AR and VR systems. Machine learning-based algorithms will enable real-time prediction of hotspots, identify high-risk items, and categorize them. Early flagging of potential vulnerabilities will empower organizations to provide disruption-free streaming services. Prevention layer Prediction of zones prone to potential cyber risk drives the development of prevention models. Prevention against cyber-attacks requires strict adherence and compliance of 5G streaming systems to domain-specific and regulatory security standards. A combination of streaming specific qualitative assessment (SQA) and quantitative automated control testing (QACT) methods can be used to design a hybrid prevention model with capabilities to add new controls in the future. Leveraging the hybrid prevention model will help industries adopt proactive risk mitigation and thrive in the internet of things era. Protection layer The protection layer is meant to deliver enhanced cyber resilience for streaming applications. This layer is built to accommodate comprehensive, automated SAST (static application security

testing), DAST (dynamic application security testing), and component verification tests at the content aggregation level, in place of conventional last mile tests. This breakthrough approach will not only enhance the efficiency of security tests for streaming content but also cull vulnerabilities from reaching downstream systems such as user devices. Designed to enhance end-to-end security of assets in the streaming life cycle, including new streaming devices such as next-gen set-top-boxes and GPU-enabled playback devices, this final layer offers aggregation level protection and completes the proposed security-triad methodology. With capabilities to roll out bespoke automated security tests at the content aggregation level, the protection layer will bring organizations the competitive edge of validated DRM (digital rights management) capabilities, early on in the streaming value chain. The integrated security triad advantage A deep-dive, strategic approach powered by automation and context-driven analytics leveraging the integrated dynamic security-triad model will help next-gen media companies and industries pre-empt cyber-attacks targeting 5G streaming applications. This in turn widens the scope for enterprises to focus more on ideating, creating and delivering high-quality offerings backed by uninterrupted streaming services and realize accelerated business growth through customer delight. The security-triad approach helps enterprises to adopt a 'security by design' principle to protect streaming applications and ensure disruption-free, high-quality streaming services in real-time and monetize from the 5G economy. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense TCS Managed Detection and Response Services Securing Digital Assets with Enterprise Vulnerability Management Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =====================

A three-pronged approach to secure your multi-cloud

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cybersecurity/blog/multi-cloud-cyber-security-strategy ----- Services Data and Cybersecurity to Fight off Cyberattacks Highlights In this article Introduction Multi-cloud security concerns Multi-cloud security strategy Implementing a multi-cloud strategy About the author TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker?

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nine cloud vendors in all. Principles for successful cloud security adoption Cloud security strategy can be daunting, especially for companies that are not digitally native. Fortunately, there have been ample success stories to demonstrate that any company can have a robust security strategy, if they adopt the following principles: Cloud agnostic: Enterprises need to leverage the power of public and private clouds to get the kind of setup that suits their business needs. While this does increase the number of variables that you have to manage, the payoff can be immense, both from a security as well as a business value perspective. Consistency: Functional and operational consistency is paramount to the success of the strategy. Uniformity amongst controls, processes, frameworks, and operational modes ensures that applications run smoothly across all environments and geographies, enabling the security strategy to scale. Digitization: Cyber security strategies on a multi-cloud platform should be agnostic to people and cloud service providers (CSPs). Implementing platforms that are capable of proactively seeking out threats and neutralizing them in time is the way forward. Such systems require minimal investment and are often built to function right out of the box. Futureproofing: Foundational security practices usually have native security controls that are rapidly approaching obsolescence. Companies must modernize their enterprise security framework, to secure operational and governance services as well. Centralized management: Lack of a unified console to monitor a multi-cloud setup is a problem that compounds over time. Centralized management of multiple cloud environments offers tools to identify misconfiguration issues and run compliance checks. Three ways to tackle multi-cloud security challenges We believe that the three-pronged approach covering cyber hygiene, enhancement, and modernization, in that order, should be the foundation for implementing a robust multi-cloud security strategy. Cyber hygiene: The formula for a multi-cloud setup is not vastly different from that of a single cloud environment. Adopting multi-factor authentication (MFA), a carefully configured firewall, and constantly monitoring access logs can help prevent most of the cloud hijacking instances. Overarching these with operational segmentation and awareness programs would put your company in good stead when it comes to multi-cloud cyber hygiene. Cyber enhancement: Existing enterprise capabilities must be modified to suit a multi-cloud setup to ensure there are no blind spots in the security strategy. These enhancements will have to be made for the dual purpose of updating existing infrastructure while ensuring that their weaknesses are not translated into a multi-cloud environment. Cyber modernization: Shifting to a multi-cloud approach presents an excellent opportunity to modernize cyber-security controls and policies. The next crop of technologies like artificial intelligence, machine learning, big data operations, automated software solutions will simplify the management of multi-cloud security. Conclusion For successful multi-cloud adoption, security cannot be an afterthought. It needs to be developed alongside to underpin all decisions taken in pursuit of fine-tuning your cloud setup. Each aspect of the multi-cloud strategy - centralization, consolidation, and consistency will have to be dealt independently before synergizing them to build your holistic cyber security strategy. Automate cloud security Enhance cyber resilience with zero trust security TCS Helps Healthcare Insurance Firm Improve Cloud & Data Security TCS Recognized as a Leader in IDC MarketScape Worldwide

Engineering major guardrails its product line

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assessment of how employees use devices to connect to the business network and identified potential vulnerabilities that hackers could exploit. After evaluating the entire gamut of the client's infrastructure, we conceptualized a multi-phased implementation of a holistic security solution that will secure the client's 7,500+ devices proactively. We automated incident response to detect and fix breaches with minimal human interaction to ensure the smooth running of routine business. We helped the client to build resilience, improve business continuity, and drive innovation. With better compliance, security controls, and risk management framework, the client adopted a zero-trust security model to knock out hackers that steal data. Our solution monitored the endpoints to analyze, detect, report, and respond to suspicious activities on the client's disparate operating system landscape. Advanced threat hunting tools and security levers were put in place to perform behavior analysis with AI to proactively defend against malicious virus and malware attacks.   Cyber threat monitoring Savings on licensing Devices secured Securing GenAI models with a rigorous cybersecurity defense Building Resilience and Combating Threats in Cybersecurity with AI Customized Machine Learning Combat Cyber Attacks Fortifying Industrial Environments with ICS Security Services Ready to secure your digital estate? Theme Font size Line height

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Credit bureau elevates its security posture

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over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. A credit bureau, with operations in 45 countries, wanted to protect its customers' credit scores from cybercriminals. We built systemic security controls with high encryption standards to prevent data theft and misuse. Ethical hacking preempts intrusions and empowers IT to process and store credit scores safely. For one of the leading credit score processing companies in the world, securing sensitive financial data of its customers is of paramount importance. The company is focused on helping its customers know their borrowing capacity and connects them to the right businesses and lenders. As the financial services sector is vulnerable to cyber fraud, a secure data processing environment to prevent data and identity theft is a business necessity for the bureau. A data breach could lead to hefty non-compliance penalty, besides causing customer churn and impacting the bottom line. The credit rating bureau partnered with TCS to build an end-to-end security solution to proactively secure its financial applications, databases, employee access, and IT. The client was using diverse security applications and protocols inherited from multiple mergers and acquisitions. We adopted ethical hacking to accurately determine security risks in this complex IT landscape—which includes on-prem servers and cloud. Based on this analysis, we developed a solution to encrypt credit scores and reports. The solution also continuously monitors for threats, identifies potential vulnerabilities, and secures employees' devices that access customer data. Armed with actionable security insights, the credit bureau is always one step ahead of hackers. TCS strategized a data and cloud security management system to reduce the attack surface. By establishing an analytics-led security culture, we could help the client roll out a robust data protection strategy to safeguard its data, networks, cloud, and security layers. Our simplified processes and well-defined security controls improve threat detection and response. Ethical hacking keeps the client's financial data secure and immutable and helps them confidently serve customers. Optimized strategy Activity monitoring Threat mapping Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height =====================

European Financial Firm Streamlines Processes

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the application team to understand and identify the right security logic—RBAC, ABAC, and PBAC. We conducted a series of workshops and sessions with the application owners and application architects to understand the IAM ecosystem, and further identify right security context for their applications and onboard them.   TCS enabled the bank to comply with all applicable regulatory norms.   Our teams also analyzed issues and suggested appropriate solutions, either through platform enhancement or process improvements. Through our engagement, we enabled the client organization to consolidate IAM platforms to a defined strategic platform, while maintaining a single point of contact throughout the migration process. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height =====================

Finance Firm Future Proofs IT Ecosystem

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begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cyber Security / Case Study TCS transitions & integrates enterprise apps to a robust, unified Identity and Access Management system. You have these already downloaded We have sent you a copy of the report to your email again.   A US-based leading financial services organization was facing multiple errors in their production environment, and therefore, wanted to enhance the security of its IT framework with a centralized identity and password management system. The bank also needed to cope with emerging regulatory changes, rising instances of non-compliance, and productivity concerns, and sought a partner to: TCS transitioned the bank's systems in two phases. In the stabilization phase, TCS owned the IAM infrastructure and analyzed the existing landscape to recommend architectural changes, bringing platform stability. In this phase only two LOB's in the bank were using the IAM platform. In the 2nd phase, TCS helped the bank upgrade their IAM infrastructure, and rolled out the latest IAM platform across the entire bank's LOBs. As a result we: TCS integrated 400+ apps into the new IAM system.   The next major challenge was to onboard about 500 disconnected applications for access reviews. An end-to-end automation model was built which made it possible for the bank to onboard any application in one day and roll out the access reviews and provisioning for that application. Our solution simplified vital enterprise-wide processes and established automated certification campaigns with a closed loop remediation process. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height =====================

Global bank strengthens cyber security

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the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cyber Security / Case Study TCS enables robust threat modeling, secure development, and comprehensive risk assessment. You have these already downloaded We have sent you a copy of the report to your email again.   The global banking giant wanted to protect itself from rising cyber-attacks and data theft in the industry by building advanced end-to-end cyber security capabilities. They aimed to close security gaps early on in the application lifecycle by focusing on model-driven security. The existing vulnerability management tools couldn't provide contextual security insights and required rule engine customization. The lender also wanted to review and optimize its application risk assessment framework to gain better visibility into the security status of its applications.   The bank partnered with TCS to adopt a proactive approach towards cyber security and vulnerability management. TCS designed a tailored, web-based threat modeling tool with an intuitive user interface. The tool was customized to meet the lender's functional and scalability needs. Further, we customized the existing code quality monitoring tool to enable early detection of security issues during the application lifecycle. TCS came up with secure coding rules and defect remediation guidelines, and trained application developers to acclimatize them to the new development framework.   We automated and standardized the information security risk assessment processes and developed a powerful algorithm to determine the risk ranking of various applications based on multi-factor analysis. The bank's static application security testing (SAST) workflows were optimized and automated by integrating security scanners with workflow systems, integrated vulnerability dashboards and robust trend analytics.   Through this cyber security transformation initiative, the lender was able to ensure zero-defect code for secure applications, identify defects in early stages of the SDLC, and accelerate time to market for new applications.   IT risk management effort security issues reported application development time threat modeling tool coverage Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your

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Telecom Major Boosts Customer Experience

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managing the user access management lifecycle, from onboarding to separation, thereby rendering the company vulnerable to risks around identity and access management (IAM).   TCS handled all aspects of network protection including identity and access management, vulnerability management,network and data security to help the enterprise prevent unauthorized access, network intrusion and data theft. Our Identity and Access Management services facilitated effective management of the entire digital identity lifecycle. We established a centralized point of control to swiftly manage employee access. We instituted a common password policy across all applications, and made two major changes at the process level, including self-service to reduce load on helpdesks and streamlining access approval procedures.   TCS' attitude and services helped bring down security incidents.   We deployed a vulnerability management service that included periodic scanning of IT infrastructure and web applications. We ensured maximum network security and intrusion prevention. Our security incident and event management (SIEM) services helped the firm monitor data traffic round the clock to identify security threats, by correlating events from log data collected from diverse sources. We provided data security services to help the company avoid information theft and leak. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height ======================

Professional Services Major Strengthens Application Security Across the Business

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combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cyber Security / Case Study You have these already downloaded We have sent you a copy of the report to your email again.   In order to meet stringent security protocols, the firm needed to conduct annual penetration tests on their web and mobile applications across business functions. This needed to be complemented with quarterly automated scans of the production URLs to identify and remediate security threats. With the aim to structure their testing activity into a comprehensive vulnerability program, the firm also had to operationalize the test results. However, the lack of a holistic testing framework made it difficult to schedule tests and adhere to predefined SLAs and timelines.   TCS implemented a structured enterprise-wide vulnerability management framework, which combined automated scans and manual testing processes for all applications. Deploying over 100 test cases across categories, we ensured accurate identification, analysis, and reporting of critical findings defined in-line with the severity index. Based on the results, we delivered customized remediation measures. Leveraging TCS' vulnerability checklist and risk assessment matrix, the firm could gauge, segment, and neutralize varying security issues. We also conducted and reported test findings and vulnerability trends gleaned from periodic statistical analysis to help increase visibility for the firm's stakeholders. Our solution helped streamline the overall application testing process across different lines of business.   "I rank TCS 1st among my suppliers and recommend them within & outside my organization" Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height
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Global Media House Beefs Up IT Security

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media-house ----- Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Media enterprise seeks to address security issues at strategic and tactical levels. TCS' Enterprise Vulnerability Management Program streamlines risk profile scanning. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cyber Security / Case Study TCS implements effective Enterprise Vulnerability Management program with sophisticated risk-based model. You have these already downloaded We have sent you a copy of the report to your email again.   A leading US-based global media house developed and deployed dynamic solutions to meet customer demands. This led to a large number of technology platforms, legacy systems, complex infrastructural frameworks and varied applications operating across networks. The enterprise was targeted by hackers and its security team was under immense pressure to protect it from future threats. It had 100+ applications, which needed to be security tested within a month, with no streamlined approach and only one automated tool to perform the operation.

   TCS conducted root cause analysis to understand the current state of information security within the organization, identify gaps, and offer recommendations over a three-week period. We followed this with a comprehensive, ongoing Enterprise Vulnerability Management Program. Our team of security penetration testers, strategists, and consultants have been involved in end-to-end program management, which includes vulnerability assessment across applications, workstations, and servers. We are also engaged in detection, reporting, and consulting on vulnerability management issues in these environments.   TCS ensured 24x7 availability of security experts.   Our solution offered a new security model with 24x7

availability of security experts for continuous security scanning. We provided streamlined and comprehensive application scanning, prioritizing mission-critical applications. We optimized and automated scanning tools to perform customized scans. We developed a dashboard-based reporting system that provides 50+ infrastructure scan reports and 20+ application scan reports every month. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height =====================

Health Insurer Secures Its Cloud Strategy

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and applications. A healthcare insurance firm was heavily dependent on manual security policy enforcement which had resulted in increased threat exposure and non-compliant landscape. The lack of visibility of security posture for enterprise cloud landscape created a blind spot in governance leading to non-compliant, insecure applications and workload. The gaps in security increased the time-to-market for business-critical applications. Further, the limited view of risk exposure and missing decision matrix for risk assessment of applications led to the movement of business sensitive data to cloud without effective security controls. Secure cloud landing zone and automated policy enforcement helped improve security. TCS delivered end-to-end cloud security with its design, deploy, and automate secure cloud migration strategy. Using its cloud security foundation build services, TCS designed a secure architecture landing zone to build foundation security controls for network, data and application layers. By defining strategy, framework and execution approach for secure application migration, TCS conducted risk assessment, reporting and remediation of current application landscape and closed critical vulnerabilities to reduce risk before migrating to cloud. TCS used industry best practices and risk-based approach by leveraging public cloud-native data security controls and third-party security solutions. Its Security Policy as a Code framework helped define and create more than 400 policies for the firm and provided increased visibility across cloud using security controls and use cases to address evolving threats and compliance requirements. The client enjoys increased security visibility across cloud with continuous posture management. TCS defined, created and enforced automated security policies as guardrails by leveraging TCS Security Policy as a Code framework. TCS also developed an application risk assessment solution to operationalize application security for the cloud landscape. Reduced spend on regulatory compliance Savings with security tool automation Faster build cycle Reduced project cost Applications with reduced risk Critical vulnerabilities identified and resolved   Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height =====================

Energy major improves security posture with integrated IT-OT defense

Service Data and Cybersecurity to Fight off Cyberattacks Highlight In this article Challenge Solution Benefits METRICS Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in

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guardrails. The energy company improved its security posture with an integrated defense of IT-OT ecosystems. TCS' solution, powered by advanced security analytics, provided them with centralized visibility into potential threats and vulnerabilities across IT-OT systems. The transformation significantly reduced the time to detect and respond to threats. Key benefits: 30% increased security operations center maturity 40% more operational stability 1.3% false positive rate, down from 50% 40% overall risk reduction License optimization Per year cost benefits by creating synergies with teams Demilitarized zone vulnerabilities Strengthening Cybersecurity with TCS' Managed Security Services A global credit bureau secures credit scores Engineering major guardrails its product line TCS Helps Healthcare Insurance Firm Improve Cloud & Data Security Ready to secure your digital estate? Theme Font size Line height
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Retailer keeps cyberattacks away with proactive defence

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news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Enabling effective monitoring and mitigation of cyber threats The client, a leading retailer, wanted to put in place a proactive cybersecurity strategy for improved visibility, monitoring, and governance. This would help streamline security operations and vulnerability management processes. Another challenge was the lack of asset inventory and prioritization, which made it difficult to analyze risks in real time, block potential breaches, or plan remediation actions. The client needed to create a proactive cybersecurity strategy to identify security blind spots, monitor resources, and improve governance. Closing gaps in processes, documentation, and inventory maintenance with robust managed security services was also a priority.   Building a strong security posture with TCS' Security Operations Center Leveraging TCS' Security Operations Center, we enabled the client to enhance monitoring by identifying critical assets for integration into the security information and event management platform, and prioritizing the assets based on threat perception and criticality. Using TCS' Managed Security services, we created an asset inventory of 15,000 devices across geographies with a map scan and defined the scanning cycle through periodic reports and remediation actions to streamline vulnerability management. We also leveraged Cortex Extended Detection and Response to integrate data across the client's digital domain, accelerate investigations to prevent attacks and data loss, secure control of sensitive data, and ensure compliance. Reducing cyber risks with TCS' Managed Security Services Working with TCS, the client could enhance security operations by integrating more than 1,150 critical devices and prioritizing the asset inventory based on criticality. Through the Cortex XDR tool and periodic cyber threat reports, it could proactively detect simulated attacks. With confidence in the knowledge that its business is safe, the client can now focus on providing secure shopping experiences to its customers. Leveraging TCS' Security Operations Center, the client could proactively mitigate cyber threats. Cyber Threats Within Digital Ecosystems May Be an Enterprise TCS launches Cyber Defense Suite, an integrated platform How modernizing cybersecurity empowers business growth State-of-the-art centers to protect cyber attacks Ready to secure your digital estate? Theme Font size Line height =====================

Data Privacy: Four Steps to Quickly Achieve GDPR Readiness

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Customized Machine Learning to Combat Cyber Attacks

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to win against cyber criminals Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cybersecurity / White Paper David Makovoz Lead Data Scientist TCS Cyber Security You have these already downloaded We have sent you a copy of the report to your email again. Adopt a three-pronged approach to make the best use of machine learning (ML) and artificial intelligence to detect and counter cyber-attacks: Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height =====================

Sharpening Threat Detection with User and Entity Behavior Analytics

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From Reactive to Predictive: Welcome to the Future of Cyber Defense

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Zero Trust Security – A Cornerstone to Cyber Defense and Resilience

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Securing the 5G ecosystem proactively

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and Cybersecurity to Fight off Cyberattacks Highlights In this article The future is 5G The evolving 5G landscape Securing 5G networks Ushering in a secure digital future with 5G Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Prashant Deo Global Head, Security Tools and Engineering CoE, TCS Cyber Security Nayankumar Panchal Consultant, Security Tools and Engineering CoE, TCS Cyber Security You have these already downloaded We have sent you a copy of the report to your email again. 5G is priming well to fuel technology and business innovation that will disrupt industries from automotive and energy to agriculture and city management. While 5G presents immense opportunities for businesses to launch innovative services, there are new cyber security risks and concerns to be addressed. The highly connected 5G ecosystem comes with challenges such as expanded, large attack surfaces with multiple entry points; difficulty in detecting anomalies and security incidents; and complex security standards that leave loopholes for hackers. 5G players need to be one step ahead and ensure proactive defense by leveraging technology advancements. This paper recommends four key security principles and strategies for 5G players to improve network reliability and customer trust. We also share an actionable roadmap to help enterprises mitigate advanced security risks. The journey to proactive security begins by adopting four key principles, namely implementing security by design, taking a zero-trust approach, automating vulnerability management, and building cyber-resilient networks.   Enterprises are poised to harness 5G's functional capabilities, such as high reliability, low latency, and enhanced mobile broadband speed. However, assuring end-to-

end security for the exponentially growing number of 5G use cases is a foundational need for successful and wider adoption of the technology. This is particularly important with several reports warning of some real risks. Like this US government report that indicates that growth of 5G technology and its use cases could "introduce significant risks that threaten national security, economic security, and impact other national and global interests." Industries and communities will rely on the demonstration of positive security assurance from stakeholders as the technology ecosystem of these use cases, including 5G, are vulnerable to numerous cyberattacks by hackers and nation-state actors with different motives. 5G networks run the risk of inheriting vulnerabilities from 4G. By embedding security at the core, enterprises can proactively fend off threats. We believe the journey to proactive security begins by adopting four key principles—implementing security by design, taking a zero-trust approach, automating vulnerability management, and building cyber-resilient networks.   1. Security by design: Various stakeholders involved in the 5G ecosystem must adopt security by design and implement prescribed design-level controls (Table 1). Inappropriate isolation and authentication controls of network slices exposes to the DOS attack and risk of disclosing customer location data. In such a scenario, bolt-on security controls or security as an afterthought are proving inadequate, costly, and susceptible to multiple attacks. Principles like secure boot environment, pervasive data protection, subscriber data privacy, least privilege, and resilient systems are some of the key design principles to be factored into design life cycles to make 5G secure. Different stakeholders involved in 5G ecosystem will need to adopt a security by design principle and implement design level controls. Inclusion of design principles during the development of system will beef up security with built-in controls. Adherence to design principles will ensure improved security posture and compliance, reduce costs on fixing the security bugs. 2. Zero trust principle: Establishing trust and continuously validating it is key to mitigating potential attacks on 5G networks. Unlike 4G LTE where mobile packet core is centralized with a clearly defined network perimeter, 5G uses technologies like multi-access edge computing (MEC), which has practically blurred the perimeters. 5G's service-based architecture comes with loosely coupled systems involving multiple stakeholders and increases the attack surface with multiple entry points into the network. In non-standalone rollouts, mixed usage of 4G LTE and 5G components introduce additional risks. Hence, traditional methods of implicitly trusting the network post authentication are no longer sufficient in the new ecosystem. Embedding the following five zero-trust principles will bolster security in the 5G landscape: Never trust, always verify: The many entities involved in the 5G ecosystem, including subscribers, network nodes and management users, must be authenticated for every session through various authentication mechanisms such as digital identities, devices, device states, and contextual risk analysis. Provide least privilege: Grant policy-based access (role-based and/or attribute-based access) to the required resources with the principle of least privilege. Access to critical systems, including HSS (home subscriber server) and MME (mobile management entity), should be designed purely on least-privilege basis. Reduce attack surface: Mechanisms like segmentation and segregation of applications and systems help in reducing the attack surface and increasing the visibility of east-west traffic. Enhance visibility: Enterprises cannot protect what they cannot see. So, there is a

need to establish mechanisms to collect telemetry data from edge, radio access networks, and within the core, including north-south traffic and east-west traffic. Enterprises must analyze this telemetry data at the source for any pattern deviations from the baseline traffic to identify indicators of compromise (such as Distributed Denial of Service attacks and malware traffic). Offer data-centric security: 5G handles various types of sensitive data sets including subscriber and billing data. Hence, it becomes critical to persistently secure these using data protection mechanisms. These methods must leverage native database encryption at the HSS level and include TLS-level encryption (transport layer security) for data in motion and IPsec for backhaul communication protection. 3. Robust and automated vulnerability management: The dynamic nature of 5G services invariably introduces new risks and exposes vulnerabilities present in the software code, APIs (application programming interfaces), and microservices. Managing these vulnerabilities manually without prioritization becomes a daunting task and vulnerabilities pile up over time. This necessitates setting up a robust vulnerability management program that has elements of threat-based prioritization, aggregation capability, and automation to handle the various tasks and remediation. 4. Building cyber-resilient networks and systems: Security enhancement measures, however robust, cannot offer 100% immunity from cyberattacks. 5G players can improve resiliency by: Identifying critical assets and the potential lucrative targets of adversaries through business-impact analysis. Referring a standard cybersecurity framework (NIST 800-160) and guidance from 3GPP/ITU to identify suitable security controls 5G is at an inflection point of ushering a new digital future to help businesses disrupt at scale. However, enterprises must adopt relevant security principles such as zero trust to secure their digital assets and identities and ensure continuous threat monitoring and risk management. These decrease the chances of a breach and improve confidence in the 5G system. Embracing prescribed holistic controls will boost the immunity of 5G systems to cyberattacks, making these more reliable to deliver predictable outcomes for industries and societies at large. Moreover, all 5G components, including applications, virtual network functions, network slices, and APIs, should be regularly scanned for infrastructure and application-level vulnerabilities. Adherence to these principles will ensure improved security and compliance, reduce further expenses on fixing security bugs, and help enterprises build scalable and secure businesses. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Ready to secure your digital estate? Theme Font size Line height =====================

Building a Multi-cloud Security Strategy

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Eliminating the C-suite's cybersecurity blind spots

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organizations have found too late that their systems are only as secure as their least vigilant vendor or employee. Our experience suggests that the best solution is built on a zero trust model, which considers all internal and external entities as 'untrustworthy' and a potential source for breaches of the organization's security. Nothing is trusted by default; everything requires verification. This security model is designed to be context-aware, risk-driven, and adaptive enough to meet the fast-changing and rapidly-expanding complex threat landscape. Delivering against this assumption requires attention and investment at the highest level. We have developed specific tactics, such as regular testing and AI-driven analyses of employee behavior, all of which establish a zero trust model throughout the enterprise, educating employees and third parties on its principles and enforcing it rigorously. With a culture of awareness and a supporting system, even a successful attack is blunted in its impact, and the attackers are more likely to be discovered before they can do too much damage. The effectiveness and efficiency of these technologies depend meaningfully on what problem you're trying to solve. Some executives may require vulnerability remediation, while others need a greater focus on vendor risk. Depending on your geography and industry, a focus on consumer privacy may be paramount. Either way, the solution often rests in using the proper tools. We believe that the right solutions for one organization won't be the same for another—even in the same industry. The key is to work with a partner who offers a variety of horizontal products, platforms, and services backed by deep intellectual property and use cases. Ransomware tools can now be downloaded from marketplaces on the dark web. In other cases, ransomware is sold as a service, much like apps on the cloud. These ransomware-as-a-service options allow less experienced hackers to execute more ambitious attacks and significantly increase cyber risks. The best response recognizes the invaluable input of teams of security professionals and threat-response centers, along with alliances and partnerships, multinational teams, local intelligence units, and security solutions at scale. Because of the broad scope required, boutique approaches may be insufficient to cope with the breadth of risk and vulnerabilities. In addition, we have noticed that most organizations find a direct relationship between the effectiveness of cyber measures and the speed of their implementation. The longer it takes to bring cyber measures up to design, the less likely they are to work, and what's worse, the less return on investment is gained. While enterprises focus on protecting their e-commerce applications, they must also safeguard the related development ecosystems, such as cloud, infrastructure, and platform-as-a-service. Having a tested and assured method for this requires systematic compliance and automation. Setting this up at scale and building in the required repeatable level of capability is an ongoing exercise that often causes concerning gaps. CISOs can address these gaps by adopting automated platforms that provide enterprise-wide asset visibility with real-time integrated analytics on the risk and security posture of the enterprise. Today's CISOs must be equipped to mitigate fast-emerging threats and proactively prepare for tomorrow's. Cyber threats emanate from networks of advanced cyber criminals plotting new attacks, exploring today's defenses for weaknesses, and sometimes leaving behind evidence of their work. The C-suite must consider these as signals of future threats and be prepared to detect, defend, and respond. The only thing more challenging than a cybersecurity attack is making the difficult choice of

what technologies and services to use to combat various threats. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height

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Embedding cybersecurity in educational institutions

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data security is crucial as universities and other educational institutions throughout the world have digitalized their operations. A holistic cybersecurity strategy for educational institutions and universities can address human errors and biases. The advantages of in-person and online learning are combined in hybrid learning models. This also mitigates their potential risks, including logistical or physical proximity challenges and checking against fraud in online learning. Additionally, long hours of online education cause fatigue and limit practical exposure.   Colleges and institutes across the globe rapidly progress toward digitalizing their operations and educational processes. It is therefore imperative to keep data secure and implement watertight mechanisms for cybersecurity. Educational institutions realize that the sudden and rapid digitalization has left many gaps that could be, or are being, exploited by malicious actors. The large size of these organizations and the inherent churn involved further increase their risk for a variety of cyber-attacks. We will discuss why educational institutions must not look at cybersecurity simply as a technical exercise but make it part of their growth strategy and embed it into their organizational culture. Hybrid education is here to stay. Over the last few years, innovation in the global education sector has accelerated. As education industry leaders reimagine education, there is a pressing need to explore ways to deliver seamless learning experiences. As a result, stakeholders from the industry are examining different educational models to meet the diverse needs of the students. A key development has been the emergence of the hybrid education model—a combination of in-person and online education. While traditional classroom teaching will remain in some form or the other, the hybrid education model is the way forward. In many ways, the latter is not a supplement to the former but, both are complementary to each other. Students can leverage a combination of online and offline content for customized, deeper, and richer learning experiences. Institutions can collaborate with partners to introduce innovative features such as digital libraries and facilitate sessions from industry experts across the globe, all at a relatively lower cost than if all of it were being done offline. The speed of adoption of new technology will likely decide the future leaders in the education space. However, the growth of hybrid education has not been organic and hence, suffers from some inherent gaps, the biggest and most damaging of which is cybersecurity. Monetary and reputational damage aside, cyberattacks are major impediments to growth. The stakeholders in a typical higher education institution are students, faculty, research personnel, and professional service providers. The sizes of these organizations are almost equal to, or often bigger than the large corporate organizations of the world. Yet, their IT budgets amount to less than one-tenth of the budgets of large enterprises. Combined with factors such as the lack of funding, staffing issues, and delayed adaptation to new technology, these institutions have become lucrative targets for malicious actors. The relative ease of availability of sensitive data, its demand in the black market, and the opportunity to leverage this information for ransom further add to the negative attention this sector is facing. In 2020, some universities in the US, along with others in the UK and Australia, were targeted by hacking operations trying to steal intellectual property. Recently, the University of Oxford's Division of Structural Biology was attacked by hackers seeking information on the vaccine the university developed with AstraZeneca. Multiple universities and schools worldwide have faced denial-of-service

(DoS) attacks. The inherent qualities of the sector's size and churn also play against it. The sheer size of such organizations, with a large number of people joining and leaving each year, put an additional load on the IT teams to manage and track access. Also, the current IT infrastructure in most universities is complex and siloed, and the adoption of the hybrid model of education has complicated matters further. Another reason is the abundant availability of personally identifiable information (PII). This type of data fetches a high price in the black market and on the dark web and can be used by threat actors for various reasons, including fraud, identity theft, terrorism, and blackmail. PII encompasses highly sensitive data such as names, addresses, social security numbers, and the salary information of current and former employees. Education, by design, functions on a four-dimensional delivery model—people, processes, technology, and partners. The people dimension features four distinct types of personas. It encompasses students, teachers, researchers, and professional service providers, with the last group being the most diverse. Each persona, with its own behavioral and functional traits, further complicates the process. For example, support staff may be more vulnerable to phishing attacks that can expose the PII of students, alumni, teachers, and applicants. Most universities today operate with the BYOD (bring your own device) model for students. Further, for a learning environment, a free flow of data, a collaborative atmosphere, and 24X7 availability of information are essential. These factors create complexity when features such as access control and restricted data availability are implemented for security. With its inherent churn rates, this makes the people dimension the most complicated and critical aspect. Another dimension is the partner ecosystem. Consider the case of the data breach at a large US medical university, where the university had to pay a huge fee to some of the employees. A former employee of FEMA, a partner organization, gained access to the university's human resource database and stole employees' sensitive PII and W-2 information. This information was then sold over the dark web to cybercriminals, who used it to file false tax returns. The cybersecurity strategy for the education industry cannot be a plug-and-play approach. What institutions need is to go the bespoke way (see Figure 1). An infographic detailing a holistic cybersecurity framework for educational institutions and universities to address human errors and biases, ensuring data security. It has the following components: Identify: Develop an organizational understanding to manage cybersecurity risks to systems, people, assets, data, and capabilities. Recover: Develop and implement appropriate activities to maintain plans for resilience and to restore any capabilities or services that were impaired due to a cybersecurity incident. Respond: Develop and implement appropriate activities to take action regarding a detected cybersecurity incident. Protect: Develop and implement appropriate safeguards to ensure the delivery of critical services. Detect: Develop and implement appropriate activities to identify the occurrence of a cybersecurity event. An educational institution's cybersecurity strategy must consider its diverse stakeholder set and the rapid inorganic digital adoption it has undergone. Also, educational institutions promote data sharing rather than compartmentalization. This must be addressed when framing cybersecurity strategies. The solution must address the behavioral details before the technical ones. The strategy should start with realizing positive social change through extensive training

and monitoring. This must begin at the basic level and include stakeholders such as security personnel and lower-level admin staff while increasing awareness at the top levels. This will help ensure that cybersecurity is woven into the organization's cultural fabric and will drive organization-wide accountability. Secondly, as depicted in Figure 1, prioritization is required to identify the most important things that need protection. In addition to mission-critical systems, this could include information and assets with the highest impact. This helps with planning for redundancies, ensuring business continuity, and isolating contents such as research, novel technology, IPs, patents, PII, and financial and third-party information. Thirdly, centralized IT infrastructure with a tailored cybersecurity governance framework should be implemented with a strong backbone comprising segmented networks, well-designed back-ups and redundancies, and a well-defined accountability matrix. The system should have uniform protocols, accounting for factors like BYOD and remote and multi-device logins, enhanced two-step user authentication methods, and a highly streamlined and automated access control mechanism based on a zero-trust security framework. Further, the system should also address the behavioral aspects of cybersecurity by having a robust incident reporting mechanism, identification of best practices and fast remediation, reward and punishment practices, and dynamic policies driven by BCP drills, continuous evaluation, and readjustments. Finally, cybersecurity readiness should move from a reactive approach to a proactive one, combining traditional defenses with real-time monitoring and data-led intelligence to predict incidents before they happen. There should be a well-documented and well-socialized recovery plan that specifies each stakeholder's roles in case of a breach. This should be reinforced with regular drills, testing and awareness drive on the latest threat actor capabilities and behaviors, infusing cybersecurity into the very ethos of the organization.   Artificial intelligence can elevate the cybersecurity game. Institutions can benefit from AI by becoming more aware, responding quickly, and enhancing the overall effectiveness of their cybersecurity systems. AI can also be used for behavioral analytics, network security, vulnerability management, and phishing detection and prevention. On the flip side, unlike traditional systems, AI systems can be breached in non-traditional ways that could lead to privacy violations. There is no room for complacency in an area as vital as cybersecurity. From valuable research data to private information, there is too much at stake. Institutions must explore established technologies for cybersecurity defenses and emerging ones. As threat actors easily leverage blind spots, both the ethical and technical aspects of cyber security violation need intensive research. Cybersecurity approaches must be ever-evolving and help facilitate a safe place for learning, a secure arena for employment, and a protected environment for sensitive research. Building Resilience and Combating Threats in Cybersecurity with AI Securing GenAI models with a rigorous cybersecurity defense Strengthening Cyber Resilience with Effective Vendor Consolidation How to de-risk your digital ecosystem Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height ====================

Leveraging the Monte Carlo Method to Quantify Cyber Risks

Services Data and Cybersecurity to Fight off Cyberattacks Highlights In this article Quantifying cyber risks Value at risk Monte Carlo method Cyber security ROI Benefits About the authors Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Kunal Pradhan Dr Kanwar Preet Singh Sandhu Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 7 MINS READ Kunal Pradhan Global Head, Cyber Security Practice - Business Transformation Group Dr Kanwar Preet Singh Sandhu CTO, Cyber Security Practice - Business Transformation Group You have these already downloaded We have sent you a copy of the report to your email again.   There is a growing need for cybersecurity risk assessment to have a robust and reliable methodology to quantify and calculate exposure to losses Traditional approaches to quantitative assessment of an organization's risk posture involve performing risk analysis using numerical values assigned to each risk. But the numerical values don't provide a deeper context of the risks, and the process is followed as a matter of convention. A risk score computed using conventional methods cannot determine the actual risk cost. Importantly, these approaches also lack the ability to quantify the likelihood of a catastrophic event that would require the company to either invest in strengthening cyber defense or buy

insurance coverage.   Finance and insurance firms have historically used value at risk (VaR) to quantify potential losses for investments over a certain timeframe VaR is represented as a distribution of loss values and their probabilities, which is much more informative and useful than just providing the average loss. VaR is used to calculate the worst expected loss over a given time at a given confidence level under normal operating conditions. To compute cyber VaR, we need to consider all factors that expose the organization to the risk of cyberattacks in a quantifiable way. These include technical factors, such as the vulnerability status of assets, behavioral factors, including employee awareness, and monetary factors that allow quantification of losses based on the types of assets compromised. Holistic cyber VaR analysis should consider both internal causes of attacks, such as insider threats and accidents due to negligence or ignorance, and external ones, such as corporate espionage, criminal hacking, and hacktivism. With all the uncertainties coming into play, computing VaR is a challenging task. This is where the Monte Carlo method helps in covering a wider range of threat scenarios. A technique to measure outcomes of complex and uncertain cyber security problems The lack of reliable cyber risk data— whether it is attack frequencies or losses by different asset types and user types—is a major challenge to evaluating cyber VaR. That is why the Monte Carlo method naturally lends itself to evaluating VaR. Monte Carlo simulation constructs outcomes of various scenarios by using values from a probability distribution for any factor with inherent uncertainty. In cyber security, these factors are the number of incidents or attacks and the losses associated with them. A Monte Carlo simulation repeats this construct thousands or even millions of times, depending on the complexity of the problem. Each time it selects a different set of random values from the probability distribution. A realistic Monte Carlo simulation includes multiple types of attacks with different probability distributions of the number of attacks and losses. Data exfiltration, ransomware attacks, insider threats, etc., can be characterized by probability distributions based on historical data. Monte Carlo simulations assimilate all probability distributions into one simulation, stringing them together into one chain of events and responses and thus yielding results that reflect all the input components. The output of a Monte Carlo simulation is a distribution of possible outcome values. Applications and ROI of cyber risk quantification (CRQ) The value of cyber risk quantification (CRQ) lies in the ability to articulate financial loss in concrete terms. It ensures that decisions on cyber spending are supported by financial loss scenarios and methodologies that are solid and confident. Educate leadership – Enable communication of cyber risk in financial terms to executive management and board members. Justify security budgets – It is hard to justify monetary investments based on ordinal risk scoring and heat maps used in traditional qualitative risk management methods. The sound mathematical approach of Cyber VaR provides a tool to assess and quantify critical risks, which can then form the basis for prioritizing security spending. This scientific approach ensures that security budget-related decisions can be justified to various stakeholders with validation that the flow of funds is aligned towards mitigating the highest risks. Improve decision-making and ROI – Use quantitative assessment to evaluate various security solutions and determine potential overheads and savings. Limit losses to the decided threshold – Estimate potential losses from cyber threats by running scenarios, and then decide on an acceptable loss

threshold, the resources to be allocated, and preventative measures to be implemented. Improve cyber posture – Monte Carlo simulations can enable enterprises to develop robust defensive strategies through risk assessments based on a multitude of possible scenarios and effective prioritization of investments to security initiatives which strengthen the overall cyber security posture. Monte Carlo simulations can help accurately predict potential financial losses that may result from various risks They also help understand the worst expected loss at a given confidence level and assure that the losses would not exceed a predefined threshold. Monte Carlo simulations can further improve an organization's risk posture and optimize ROI on cyber security. Multiple controls can be implemented to mitigate and deter cyberattacks. Implementing these controls must be based on how they can be combined to mitigate potential attacks. A Monte Carlo simulation allows for the effectiveness of each control to be drawn from a distribution that is arrived at with each run of the simulation. An in-depth understanding of the risks of the enterprise, combined with an analysis of variable effectiveness and outcomes of adopting complementary risk controls, can allow for informed decision-making to mitigate cyber risks. As with VaR, one can evaluate the reduction of the worst-case loss as a function of invested funds. Both VAR and Monte Carlo simulations can be used as: A reliable data-driven cyber risk quantification model A forecasting model to predict catastrophic events A cyber security ROI quantification model TCS Risk & Cybersecurity Study TCS Customer Journey as a Service for a Deeper Customer Engagement TCS Governance, Risk, and Compliance Services Gatekeeping to Strategizing – Evolving CRO Function in Buy-side Firms Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

Sovereign cloud: Setting a strategy for success

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Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Meet emerging data protection requirements and stay compliant with local privacy regulations with a defined approach to sovereign cloud. Raghvendra Singh Global Head, Cloud Security V Dwaraganath Rao Pawar Cloud Security Consultant, Cybersecurity You have these already downloaded We have sent you a copy of the report to your email again.   Today's multinationals are coming under an onslaught of new rules on data sovereignty and security from almost every country. These regulations are creating pressure on them to develop and adopt sovereign cloud strategies—information management structures to hold data originating from one geographical area within that same area, in compliance with local laws and preventing other nations to access it. Geopolitical considerations are adding to the pressure and companies find themselves having to meet data protection standards for a given country or region even as they strive to make good use of public cloud capabilities across borders and regions. However, the challenge in developing a sovereign cloud strategy lies in the fact that the volume of sensitive data is exponentially increasing and the solutions available to protect that data are relatively new. While rules around sovereign cloud platforms have been put in place over the past few years, many organizations are just beginning to experiment with specific strategies for the thicket of restrictions and requirements. The end result is expected to look like a multi-cloud strategy, or a hybrid of platforms, some of which are restricted to specific regions or nations, which is why they are called 'sovereign' platforms. To date, few organizations have come far on this journey toward a sound sovereign cloud strategy. Global organizations will need to have a systematic approach to assess their use of cloud-based technologies today and define critical outcomes. Regulators, for their part, will insist on a comprehensive approach to tagging and walling off data that originates in their markets, though their rules are sometimes competing and even in conflict. In 2018, the US passed the Clarifying Lawful Overseas Use of Data (CLOUD) Act, which gives the US government control over the legal jurisdiction of data, especially in matters of criminal prosecution and security, even when data resides on foreign soil. The same year, the EU passed its General Data Protection Regulation (GDPR), compelling most organizations to think about adopting a sovereign cloud policy. Further, the EU and US have reportedly reached a deal to allow for data transfers between the two markets; the Trans-Atlantic Data Privacy Framework would

try to address previous concerns within the EU over data privacy. What differentiates sovereign cloud from a direct or commercial public cloud? The key differentiator of a sovereign cloud is a layer of compliance that logically and physically separates the sovereign data. At a technology level, sovereign cloud solutions combine out-of-the-box cloud capabilities with strong data security. Because requirements for sovereign cloud include controls over metadata, each organization will have to do a data classification and application assessment to determine whether they are following the law. This task of assessment and classification will require region-by-region and nation-by-nation understanding. Each sovereign cloud environment is expected to enable all the features of public cloud platforms —agility, security, and automation—besides supporting new solutions such as Gaia-X in Europe, or artificial intelligence, edge computing, and blockchain ones. But that raises important questions for the C-suite on cloud strategies in general. Even if regulations require firms to adopt sovereign cloud, their leadership must assess whether they have delivered on their cloud strategies as originally envisioned. Sovereign cloud platforms and solutions must align with an organization's strategic goals and objectives, thereby driving high-level discussions on how to achieve them. How are cloud providers enabling sovereign clouds? Leading cloud service providers are integrating sovereign clouds into their offerings based on the same technologies that underlie direct or commercial public clouds. A secure sovereign cloud includes a virtual machine firewall, network security groups and access control lists, the isolation of virtual network, and protection of cloud infrastructure from distributed denial-of-service (DDoS) attacks. This approach provides security, flexibility, and cost-effectiveness for digital transformation and regulatory compliance. It also provides secure and consistent access to edge locations, on-premises or private cloud, and securely hosted multi-tenant sovereign cloud. TCS proposes a framework, comprising a set of guidelines and best practices to help organizations assess their readiness for sovereign cloud adoption, develop a sovereign cloud strategy, and implement the solution. The framework provides a structured approach to sovereign cloud adoption, with four main phases: Assess: At this stage, organizations need to see what combination of public and sovereign platforms will work for their business needs. CXOs should be looking at their use cases to determine the feasibility and fit of any IaaS. In addition, risk, privacy, and compliance requirements should be accounted for at this stage. Finally, it is useful to see who will be internal sponsors of specific solutions—do they understand the full implications of their choice and the requirements they will need to meet? Since operational and regulatory requirements are closely intertwined, the individuals charged with overseeing the transition will need to have a good grounding in both. Plan: In this phase, organizations develop a sovereign cloud strategy that aligns with their business objectives, regulatory compliance requirements, and security standards. This is a critical stage where potential risks will be discovered and hopefully addressed. Organizations may also move forward here with a proof of concept, deploying their cloud solutions based on risk considerations – and then seeing how things perform. The goal should be to not only develop a strategy but assess whether the strategy can be implemented. Migrate: In this phase, organizations move their workloads and data to the chosen sovereign cloud solution—but very few organizations have reached this stage. This is the stage where the controls, decision

rights, and other guardrails are critical. This is where the most sensitive data of any organization shifts into environments where security is essential — payment information, client information, metadata, and so on. At this stage, sanitization of data is critical so that sovereign platforms are the only places where sovereign-specific data is kept. Manage: By the time any organization reaches this phase, they will be operating the sovereign cloud solution, monitoring its performance, and working regularly with regulators to update them and produce compliance reports as required. Cloud geofencing, a location-based marketing technology service, will be deployed as an application at this point to protect and secure data. Globally, regulators are on the verge of creating policies and legal frameworks to treat data as a national asset. Multinational organizations can take this moment not only as a challenge but also as an opportunity to review their cloud adoption and cloud strategies, recalibrate them to meet regulatory realities, and adopt them to strategic questions and goals. Thus, the adoption of sovereign cloud will start conversations at many organizations that—if constructed around a clear process—can unleash the full power of existing and future cloud investments. Securing the cloud with a zero-trust approach A three-pronged approach to secure your multi-cloud Managing multi-cloud security, proactively Health Insurer Secures Its Cloud Strategy Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

Preparing to be quantum-safe in the cloud

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Cloud providers and other technology companies, academic institutions, and standards bodies are all working to develop effective post-quantum cryptography (PQC) algorithms to ensure the security of the cloud and online activity. Companies are preparing for the potential benefits and risks that quantum computing may bring. A range of approaches are taking shape. Managed quantum computing services from cloud providers, such as Amazon Braket, Azure Quantum, and IBM Quantum Platform, allow researchers and developers—and businesses—to begin experimenting with computers from quantum providers. They also allow users to work with quantum algorithms that are run in simulation mode on classical computers. At the TCS Quantum Computing Lab, we are working with organizations across the globe to help them explore, develop, and test business solutions that might leverage the power of quantum computing. The lab allows testing of PQC algorithms, making it possible to run proof of concept simulations for post-quantum security protocols. Here are some aspects of quantum computing that organizations will want to learn about: Forward-looking enterprises can already take the first step to becoming quantum-ready. Companies need to take steps now to keep up with quantum development and prepare for the future. A framework that will ensure their preparedness includes the following: Securing the cloud with a zero-trust approach TCS Cyber Insights Platform on AWS A three-pronged approach to secure your multi-cloud Enhance cyber resilience with zero trust security Find out how our cloud services for quantum-readiness can help you prepare for quantum computing. Theme Font size Line height =====================

How to safeguard your enterprise with crypto-agility

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seen. Crypto-agility enables rapid transition to secure cryptography. To protect themselves against quantum attacks, organizations need to replace potentially vulnerable algorithms with quantum-safe ones. The first step toward this is to be crypto-agile. A crypto-agile application is one that can support multiple cryptographic algorithms and enable faster migration to new cryptographic algorithms. To transform applications to a crypto-agile state, enterprises should take the following steps: Identify the crypto algorithms currently in use within the application and the related lines of code. Refactor the application to separate the cryptography code into independent modules outside of the core application code. Leverage external encryption libraries, wherever possible, with a centralized key management platform/service. Work with suppliers for off-the-shelf and custom applications to ensure migration to a quantum-safe cryptography. Crypto-agility ensures that vulnerable crypto algorithms used within applications can be replaced easily with secure ones. This also enables rapid transition of applications to a post-quantum state when quantum-safe algorithms are standardized. There is no better time to start than now. Organizations have multiple applications and services, so it can be difficult to determine where to start the journey toward a quantum-safe business. Quantum-safe algorithms are yet to be standardized, and hence, are not recommended for production use yet. However, organizations can take certain immediate steps for crypto-agility, such as: Apprise business teams and senior management of the emerging risks due to quantum computing and the need to start preparing for it. Adopt crypto discovery tools to undertake a crypto inventory of the ecosystem. This will identify the use of cryptography that may be vulnerable to quantum attacks. Conduct a risk assessment of applications and services based on the outcome of the crypto discovery, with a focus on the business criticality of systems. Prioritize applications and services for remediation based on the risk rating. Engage with third-party service providers and support vendors to address potential vulnerabilities. De-couple the crypto logic as much as possible from business logic in applications. Automate cryptographic keys and digital certificate management. Organizations can start by migrating some applications as proof-of-value projects using quantum-safe algorithms. This will fine-tune the processes and procedures for the eventual migration of all vulnerable applications to a quantum-safe state. Enterprises should take a hybrid approach in their initial years of adopting quantum-safe cryptographic algorithms. Applications should be designed as crypto agile, supporting the use of both a traditional and a quantum-safe algorithm. In case a vulnerability is identified in the new quantum-safe algorithms, the applications can quickly fall back on alternative algorithms or transition to a more secure algorithm. Take a crypto-agile approach to building defenses against quantum attacks. Quantum computing is creating new risks, threats, and opportunities. Building defenses against quantum-based attacks requires time and meticulous planning. A crypto-agile approach can act as a first line of defense against the cybersecurity threats posed by quantum computers. Organizations will be better positioned to adapt to threats and update security protocols based on new and emerging threats. Organizations should also invest in a focused program for post-quantum cryptography migration, possibly with a center of excellence that guides the application teams through this journey. Prioritizing the applications based on a risk assessment and being nimble in execution will go a long way in

ensuring a smooth execution of this complex program. Is Your Business on the Quantum Computing Super Highway Yet? What's quantum communications? Quantum computing applications: Evolution & potential impact Use of Quantum Computing for Life Sciences to be Future Ready Learn more about how to leverage crypto-agility to safeguard against quantum threats. Theme Font size Line height
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Seven steps to de-risk your digital ecosystem

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much promise for future revenues and productivity by building and participating in emerging digital ecosystems, but most have not given enough consideration to the risks and threats inherent in such ecosystems. Digital ecosystems are dynamic, agile, interactive, borderless, multimodal, and decentralized. And they often have multiple gatekeepers and participants. In short, they represent a target-rich environment for hackers and digital criminals seeking to steal or exploit sensitive data or to disrupt operations. Are organizations aware? Most aren't. In most industries, efforts to revamp security procedures, institute new policies and technologies, and close gaps are uneven, poorly supported, and poorly designed. This paper explores some of those flawed approaches—and, importantly, how to correct them. Balancing the opportunities and threats that come with digital transformation   Digital transformation represents a broad, multimodal, and systemic shift for organizations and entire industries. The opportunities a company has in the market change drastically when marketing, supply chains, and other operations move to digital-only platforms and in the process creating digital ecosystems: large, often shifting, and multiplayer spaces where information is shared, business is conducted, and suppliers are linked together. However, these digital ecosystems also create opportunities of another kind, including cyberthreats and external attacks on company systems, loss of control over intellectual property (IP), and at times existential threats to business. Multiple examples of hacks and cyberthreats exist, and the issue is finally getting the attention it deserves. Nevertheless, our experience is that many organizations are ill-prepared for the risks inherent in digital ecosystems. Organizations are often taking major risks simply by doing nothing, or by doing the wrong things. In manufacturing and technology industries, we observe that companies often share IP with their global ecosystem partners or suppliers but are unable to address the risks associated with such sharing or fail to enforce the required controls to reduce those risks. The reason isn't a lack of ability or understanding. It's mostly a byproduct of volume—there are just too many suppliers to work with and track, and organizations often lack a sustainable, repeatable, and effective process and framework for de-risking their digital ecosystem. Even in industries with more advanced track records of building and maintaining de-risking processes, risks do remain. For example, in the banking, financial services, and insurance sector, there is a strong awareness of the risks and a corresponding interest by regulators in such processes. Yet even then, solutions are not implemented effectively. We take note of the rise of fintech providers whose innovative solutions address some of the de-risking priorities, but still require an accompanying focus on due diligence and security checks—something fintech providers may not be able to appreciate. Alternatively, in industries without significant regulatory exposure, we observed that they don't have the same sense of urgency to take appropriate action regarding de-risking. While they are increasingly aware of cyberthreats in general, the sense of risk does not affect the way those organizations interact with stakeholders such as their own teams, partners, vendors, and suppliers, who may potentially pose the greatest risk. In short, in any de-risking framework, one must assume that the largest source of cyberthreats comes not from someone breaking in, but rather from a door left open for an uninvited guest. Organizations must adapt their mindset, their processes, and their resources accordingly. Managing challenges in governance that arises from distributed accountability In many

organizations, the responsibility for closing risk gaps lies with several people from the leadership, rather than a single point of authority. This could lead to: Failure due to shared responsibility: The absence of clear accountability diminishes the organization's capacity to proactively prioritize and implement risk reduction strategies. Failure to prioritize risk correctly: Effective risk assessment and remediation is challenging without understanding the business context. For example, an external vendor can be a potential source of risk while also being critical and central to the business. Resolving and mitigating such risks may require unique handling and focused attention. On the other hand, other vendors for the same organization may not play as central a role to the business and therefore, handling their risk may be a more straightforward task. It's important for organizations to identify special situations for special handling while also developing systematic and automated approaches for the less-important entities. Unfortunately, many organizations fail to consider the significance of internal context, and therefore fail to prioritize their efforts. Failure to adopt basic policies: Surprisingly, many organizations lack simple protocols and policies to handle cyberthreats. This results in an expensive response to each risk, each time. Simple de-risking rules can provide a substantial amount of protection without a lot of discussion or debate. Think of usage of checklists to reduce medical error in surgery: Through a review of a six-item checklist, the risk of error in surgery can be reduced by half. Similarly, sources of cyber-risks can be addressed through mechanized or automated approaches, thus eliminating the most common errors. This allows risk professionals to focus attention on special sources of risk and threats, or black swan events. Lack of asset inventory: Often, organizations gain the first appreciation of their digital assets, such as intellectual property, when they're at risk or in crisis. This is untenable and impractical. The first step toward an effective defense is understanding the value of what you're defending and investing accordingly. Still, too many organizations fail to execute a proper asset discovery framework when it comes to digital assets, intellectual property, customer information, and other critical elements. Failure to analyze risks: It is highly important for organizations to follow a clear path of action while assessing their ecosystem for sources of risk. Analyzing the risk factors in the supply chain may result in specific actions compared to those required for mitigating risks among vendors or employees. Each segment of the ecosystem requires its own priority level for remediating those sources of risk and there should be a standard risk calculation mechanism for determining these priorities. Geographic sensitivity: Organizations in North America and Europe have developed some sensitivity to digital ecosystem risks and threats; the same cannot be said for organizations native to Asia and the Far East. This may be of special concern to multinationals whose operations span multiple major regions. Either way, organizations must meet the same, high standard for ecosystem risk assessment and remediation, regardless of where they operate. Understanding risks from system and strategy failure by exploring worst-case scenarios Digital ecosystems have the potential to streamline business processes, but they can develop serious risks if not managed effectively. Some simple set of practices and methodologies that can safeguard against risks are as follows: Perform a 'doomsday' prioritization of your risk setup: This can be done by layering in the additional context of each potential source of threat, its geography, its unique vulnerabilities, and anything else

informed by your best threat intelligence. Assess the potential loss of your most valuable and vulnerable assets and build a defense and mitigation strategy from there. Create a clear plan for addressing a large set of your vulnerabilities: By creating a realistic but still ambitious plan to greatly reduce your vulnerabilities, you will have a metric for accountability. From our work with our clients, we know that such an approach reduces vulnerabilities 70% faster over a year. Look for automation opportunities: While not widely available, an automated approach to assessment and risk management can produce meaningful reductions in the threat environment. Most solutions available to organizations rely on bespoke approaches. Automation, however, is the only realistic strategy that meets both the volume and dynamic nature of fresh threats. Deploy a prioritized approach: Since the work of addressing vulnerabilities cannot be completed at the same level of intensity, organizations must break the work into specific scoreable parameters—shared intellectual property, shared personal data (personally identifiable information, personal health information, and payment card industry data), volume of data, and regulations covering the disbursement or accidental release of such data. These parameters may suggest a prioritization for the work to be done since they may well resolve questions about the severity of the relative risk. Set a schedule for work: Organizations should assume a protocol for continuous monitoring through external risk-scoring solutions. At the same time, it is difficult to keep a constant eye on risks while focusing on the operational tasks at hand. Therefore, set a schedule to determine when to assess supply chain and other ecosystem players for their vulnerabilities. Conduct dynamic assessments: It's not wise, considering the dynamic and shifting nature of the risk, to calendarize risk assessment. Rather, organizations need to build in systems that test digital ecosystems in a dynamic and unpredictable way, with continuous monitoring and interdiction. Create frameworks bound to policies and protocols: These may be drawn from industry frameworks developed by ISO/IEC 27001 and NIST. These frameworks will include all legal, physical, and technical controls in an organization's risk management systems. At the very least, these provide a strong foundation for an individualized framework.   Adopting a comprehensive approach for the future   At a minimum, organizations seeking to address the risks associated with digital ecosystems must adopt an approach that moves beyond chasing the latest crisis. They must accept that certain risks pose a greater threat than others, that some can be greatly reduced through automated assessment and mitigation, and that some will be of particular concern because of their closeness to the core of the business. Organizations that adopt a systematic approach to de-risking their digital ecosystems will have a far greater sense of the nature of those risks, relevant to their industry and geography. They will also be able to build a far more comprehensive approach to facing threats. Note: A version of this article was originally published on CSOonline.com. TCS Cybersecurity for Operational Technology and IoT Securing the 5G ecosystem proactively Managing multi-cloud security, proactively Wiley's transformation to digital disruptor Learn how we can help secure your digital ecosystem. Theme Font size Line height
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Partner consolidation strengthens cyber resilience

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providers can help with people, resources, and expertise on local regulations and their impact on global operations, across geographies. Further, with the emergence of technologies such as generative AI, quantum computing, and hyper-automation, the pressure to add more security vendors is only increasing. In one recent survey, 49% of cybersecurity leaders said their organization uses at least six security vendors—and a few reported they have more than 40 providers. Almost all respondents (98%) said they manage security products with multiple consoles. Unfortunately, more cybersecurity solutions do not equal better security overall. Multiple consoles and fragmented solutions mean potential confusion when it comes to seeing threats clearly and mounting a unified defense. This leads to a fractured view of the threat landscape, which inhibits an enterprise's ability to identify cross-domain threats, leaving it susceptible to attackers who exploit security gaps among solutions. Consolidating the cybersecurity solutions portfolio Consolidation enhances an enterprise's security posture and accountability. When each security tool creates its own analytics, it is difficult for security teams to correlate the isolated data, which can help them identify an attack pattern. An organization's ability to interpret the complete picture may be hobbled. For example, one tool might focus on identifying application vulnerabilities, another might analyze behavior within the network, and a third may track data movement throughout the organization. Each of these tools independently offers significant benefits, but when the solutions can't seamlessly talk to each other, security teams won't be able to identify gaps. Only when they are integrated can they offer cohesive insights into potential threats. In a nutshell, how would the CISO know where to place the ownership for a security failure if half a dozen service providers and more than a dozen technology providers are involved? Consolidation, therefore, is a goal all organizations should pursue to achieve greater security and accountability. The goal should be to combine multiple security functions into an integrated ecosystem that manages the full range of risks and protects the entire digital estate. Security teams should strive for tighter integration among disparate security controls and a more holistic view of the range of threats an organization faces. The leadership may well ask whether the organization is more secure with 50 or 10 partners. There is no definitive number that best works. But one thing that's clear is that every organization can improve its cybersecurity posture by working toward breaking down silos, improving coordination, and pursuing efficiency and consolidation in its cybersecurity functions. Key tenets of the consolidation approach Consolidating a cybersecurity partner portfolio involves rationalizing existing partners and solutions. It also involves selecting the right partners that prioritize integration and interoperability. By examining and managing the number of cybersecurity partners it has onboarded, an organization can improve its security posture and capitalize on the benefits that a modernized security architecture will offer. To rationalize its cybersecurity partner portfolio, an organization can consider the following tenets: Inventory of security partners: You may be able to identify existing solution vendors who have capabilities that span more than one work stream and could, therefore, take on more. This might provide an easy starting point for reducing the total number of vendors in an organization's security ecosystem as a first step toward greater efficiency and coordination across domains. Business value analysis: By conducting a thorough analysis, you can estimate not only a tangible return on investment but also consider

domain-centric solutions aligned with your industry from security partners. You can then assess their ability to deliver these solutions. They should be able to support you in aligning your cybersecurity roadmap to your industry's futuristic view of cyber resilience. Think global-local: Special factors can drive an organization to favor a specific security partner in a geographic area. Considerations may include a vendor's capabilities with a regulatory regime or market presence. It may be important to zoom out and consider whether a partner can serve your needs globally. Finding a global partner, and working with fewer local partners, may help improve coordination and improve the security team's ability to see threats clearly across all geographies. Due diligence for niche and emerging technology partners: While selecting providers to address specific security challenges, conducting thorough due diligence is critical. When only a handful of companies can fill a need, it becomes important to fully understand the product roadmap, whether the provider is likely to stay in business, whether its leadership has adequate credentials, and if the organization has made the right investments. Besides, an organization must be cautious in choosing the right provider, as the cybersecurity industry has many startups with varied capabilities. Evaluate between integrated platform or multi-product ecosystem: You may get a fair degree of your cyber asks addressed by an integrated cybersecurity platform, offered by large service providers, which integrates security visibility and control across the entire digital estate of the enterprise. However, a thorough evaluation must be done to understand the product roadmap, its futuristic vision, and the ability to contextualize solutions for your industry. Another alternative could be to consider deploying a set of different products for different domains. Exploit existing partnerships: In the ever-evolving threat landscape, cybersecurity product vendors are constantly innovating to provide proactive defense. Many large cybersecurity firms are acquiring startups to supplement their capabilities. If such a firm is part of your cybersecurity portfolio, you gain these additional capabilities as they become part of your digital estate. Consortium approach: You can select a set of partners having synergies in their value proposition, so that they can collaborate, not compete, to offer comprehensive cyber resilience. Capturing the value of consolidation A firm gains numerous benefits when they consolidate their cybersecurity partners. For instance, having greater visibility into the most important security risks to your organization, and better control over them, is the foremost reason to address the proliferation and fragmentation of cybersecurity vendor offerings. In addition, rationalizing your cybersecurity strategy improves your ability to retain the people vital to maintaining your cybersecurity posture. In a 2019 survey of cybersecurity practitioners in security operations centers, almost two-thirds cited lack of visibility into IT security infrastructure as the biggest barrier to success. This contributed to workers wanting to quit or change careers. At the same time, vendor consolidation can boost the effectiveness of security solution investments, and it may lower overall costs. By examining and managing the proliferation of cybersecurity partners, an organization can be proactive in seeking the benefits of a modernized security architecture. Cybersecurity partner consolidation bridges gaps across diverse security components, cultivating an environment where strength lies in integration, collaboration, and a unified defense. The framework and considerations mentioned here create a security posture that is simple, agile, future proof, and can scale—serving

the overarching goals of the CISO and the security team. Boost privacy with six essential steps TCS announces 2024 cybersecurity trends Cybersecurity for Operational Technology and IoT TCS Enterprise Vulnerability Management Services Learn how we can help secure your digital ecosystem. Theme Font size Line height =====================

Generative AI brings new cybersecurity challenges

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intelligence (GenAI) is changing the game for companies around the globe. It's bringing previously unimaginable capabilities within reach and enabling exciting business opportunities. Potential use cases range from discovering new drugs, developing virtual reality worlds, and enabling hyper-personalized banking experience to software coding. The opportunities are many, but GenAI technologies are also creating novel cybersecurity risks for enterprises. With the implementation of AI applications built on large language models (LLMs), companies have a new technology environment that must be protected. However, the GenAI domain has characteristics and behaviors that differ fundamentally from the IT environments organizations know—and have experience protecting. Organizations need to realize that the same prompts used to interact with GenAI chatbots could be manipulated by bad actors to get a model to do things or disclose data in unintended ways. Therefore, it is important for organizations to safely manage the privacy and security of extensive data used in these models. Sure enough, cybercriminals are already tapping the power of GenAI to unleash new threats. Enterprises that fear they may be missing out or losing the competitive edge in the AI race may jump on the bandwagon without a robust plan to secure or govern their new GenAI solutions. This rapid unstructured adoption may open doors for cybercriminals, providing them with opportunities to compromise and exploit AI systems. This is why, as companies take the initial steps to explore and implement GenAI to advance their business strategies, they need to pursue a rigorous and proactive AI cybersecurity defense. These efforts should move forward in lockstep to ensure that AI implementations—and associated risks—are effectively managed by the cybersecurity team. As a starting point for this, the cybersecurity team needs to identify all the AI and machine learning (ML) assets in the enterprise and assess the risks they present. The cybersecurity leadership should develop AI-specific security policies and standards, setting clear expectations and establishing necessary guardrails. Wherever they expect LLM capabilities to be added to their IT environment, or sensitive company data fed into such models, they need to bring in robust procedures and policies. Software security engineering and processes should be modified to consider LLM-related security and privacy. An organization's AI cybersecurity strategy must align with its objectives of protecting data integrity and confidentiality, safeguarding privacy, and preventing adversarial attacks like model theft or evasion. It must also clearly articulate its principles around reliability of models, minimization of data, and privileges. As adoption widens, enterprises must establish standards and governance to ensure that effective controls are implemented—in the engineering and operational environment and throughout the development life cycle. The strategy must include assurance testing to validate the security and privacy of any ML and AI models the organization is using or plans to use. Bad actors are likely to exploit a wide range of potential vulnerabilities. This will occur as companies tap into the power of LLMs and other new technologies, adding to the complexity of the cybersecurity mandate. Among the issues of concern, as generative AI becomes more deeply integrated into the enterprise IT landscape, are the following: Firms need to urgently address the risks arising from the adoption of GenAI models. These risks can be new and, in some cases, unique. The key considerations that may help the enterprise to develop a robust approach to prevent these risks include the following: Further, there should be security

architecture reviews and threat modeling to assess model design for robustness and inherent resistance to attacks. Adversarial training should be incorporated so that the model is exposed to simulated attack scenarios during its training phase. Indirect prompt injection can be defended against by using reinforcement learning from human feedback (RLHF) and filtering retrieved inputs to remove harmful instructions. Other techniques that can be leveraged are an LLM moderator to detect sophisticated attacks and interpretability-based solutions for outlier detection. As enterprises enter uncharted territory, strategies to de-risk the adoption of GenAI solutions are imperative. It has now become clear that AI capabilities will themselves be indispensable to improve cybersecurity teams: Fire will be fought with fire. Even as GenAI presents security leaders with new challenges, it brings new tools that can boost the effectiveness and efficiency of cybersecurity defenses. GenAI holds the potential to revolutionize the field, significantly improving threat detection and response times through automated analysis, while also delivering real-time summarized actionable threat intelligence. New technology streamlines entitlements, enables conditional access controls, and automates the generation and enforcement of access policies. It reduces the risk of human error, alleviating alert fatigue by automating routine tasks such as log analysis, among other areas. It ensures that only authorized users have access to sensitive information. Another place where GenAI solutions may play a role is in continuous compliance with regulatory requirements through automated collection and analysis of compliance data. As cyber adversaries increasingly attack the AI ecosystem, enterprises must bravely step into this new era by de-risking its adoption—and by leveraging advanced AI technology to combat sophisticated cyberattacks. The achievable goal is to enhance overall cyber resilience, countering sophisticated threats and addressing an ever-present skills gap in this critical domain. TCS announces 2024 cybersecurity trends Fortifying Industrial Environments with ICS Security Services Strengthening Cyber Resilience with Effective Vendor Consolidation Establish privacy in six essential steps Learn how we can help secure your digital ecosystem. Theme Font size Line height =====================

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Business Resilience Assessment Service

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readiness measure at three broad organization levels: Operating model: This concerns the strategy and institutionalized empowerment culture, collaboration and knowledge management, supply chain diversification, and financial stability. This helps in people management and to analyze the financial risk management in an organization

Business process services: The service focuses on homogeneity, agile ops, level of automation, digital penetration, and data models. This helps build on the process ergonomics and digital effectiveness of an organization Technology: The assessment areas include IT foundation, functional IT structure, and remote operability. This benefits the IT continuity design of an organization Once the business resilience assessment is completed, TCS determines the current state of resilience maturity in the enterprises and offers recommendations to improve the same. A detailed roadmap with key actions plans is laid out to help enterprises prepare for emerging challenges with zero disruptions. BENEFITS TCS' Business Resilience Assessment Service helps organizations incorporate flexibility into their long-term planning efforts to overcome any potential risk scenarios in future that may damage their prospects. The solution leverages Business 4.0 methodologies to strengthen existing ecosystem and promote business growth. Based on our observations, some of the benefits that enterprises can reap with Business Resilience Assessment Service are: 30% increase in revenue generation 3X reduction in operating costs 30% (and increasing) rise in market share TCS ADVANTAGE As the world battles a pandemic, TCS believes that business resilience is the need of the hour. Business resilience helps organizations safeguard assets while maintaining business as usual. With TCS, enterprises can benefit from: Innovative best-in-class solutions, powered by strong domain expertise and IT leadership State-of-the-art tools such as Celonis process mining, PowerBI reports, and proven methodologies such as Cognitive Business Operations Suite for Maturity Assessment and Machine First Delivery Model™ Ingrained commitment to clients and comprehensive industry expertise   TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations?
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Cognitive HR

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payroll accuracy/timeliness THE TCS ADVANTAGES By partnering with TCS, organizations can leverage the following differentiators: Compelling experience thanks to enhanced employee engagement, agility enablers and productivity accelerators Intelligent and transformational HR solution with intuitive design built on cognitive foundation that provides real-time analytics and insight Simplified and dynamic pricing structure that allows flexibility of a modular solution TCS' deep industry knowledge, vast HR domain capabilities, global coverage and innovation. TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? =====================

TCS Banking and Finance Business Operations

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We have sent you a copy of the report to your email again. Leading banking and financial firms into a digital future. CHALLENGE Emerging trends and disruptions are redefining the business model of banks and financial institutions. With the proliferation of new age payments, alternative lending mechanisms, and automated solutions, among others, it is increasingly critical for these institutions to focus on innovative ways to meet customer demands. They need to evolve and adopt sophisticated digital technologies to drive customer value and ensure growth in a changing banking landscape. TCS SOLUTION "TCS Banking and Finance Business Operations enables enterprises to stay ahead in a dynamic business landscape and achieve sustained and profitable growth. We provide end-to-end Banking and Financial Services (BFS) across corporate banking, capital markets, and consumer banking value chain." We partner with BFS companies to design, enable, and execute business operations to drive customer value. We enable digital transformation with an innovative suite of financial solutions, which include mobile-based applications, banking-specific RPA components, web-based debt management, and fraud management solutions, among other services. BENEFITS $1.8 million potential savings through digital transformation $15 million revenue leakage prevented Up to 30% improvement in efficiency ratio through platform-led transformation Up to 60% reduction in average cost per transaction 15–20% reduction in fraud losses TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? ======================

TCS Communication Business Operations

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Cost and Cashflow Optimization Assessment

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learning techniques and data analytics Modular assessment framework designed for quick comprehension Pre-defined templates and curated questionnaires based on functional areas Integrated transformation approach covering people, processes, and technology to drive significant synergies   TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations?
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TCS Data Centers

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infrastructure upgrades. This results in significant financial and operational impact, which is further complicated by: A lack of standardization A central repository of reference documentation TCS SOLUTION TCS offers comprehensive data center solutions, including: Virtualisation, Server Consolidation and Transformation Hosting and colocation services Building of secure and energy efficient infrastructure environments Storage Transformation services Business continuity & Disaster Recovery Services Our offerings help re-engineer your data center infrastructure and align its capacity with your business outcomes. We address not only technological challenges and cost pressures but also help realize data center infrastructure investments to their full potential. Our dedicated data center services team, with the support of a service management ecosystem, provides round the clock support for your business processes, transactions and transformed data center environment. Our data center service capabilities include: 250+ customers across various industries 7,00,000+ servers supported globally 220+ PB storage supported globally 1,20,000 MIPs supported globally BENEFITS Maximize the value of your server virtualization deployment Enhance infrastructure efficiency with proprietary e-Transform and eReadines tools Increase business agility by aligning data center infrastructure with business goals Optimize operational expenses by using reusable assets and tools Ramp up and down infrastructure as required Improve data center scalability and privacy Ensure data security, integrity, and reliability   TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? =====================

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Design, build, deploy, and manage services around edge applications, networking, and security with the following: Platform (Platform as a Service Edge): We help customers in designing, architecting, and building scalable edge platforms for their end customers. We collaborate with our partners to choose the right technology and validate designs and roadmap features for the platform. This integrated management platform enables edge orchestration, security, and provisioning. Industry solutions: Provides edge-enabled industry solutions such as industrial worker safety, oil rig predictive maintenance, plant manufacturing quality inspection, and banking branch-in-a-box. We collaborate with cross-functional industry and technology teams to bring solutions like TCS Retail Omni-store products on edge for enhancement of the in-store experience. Similarly, we provide smart factory solutions such as cognitive quality assurance on the factory edge for improving productivity. TCS Cognix™ for edge carries a vast collection of 'value builders' – pre-built, configurable, reusable digital solutions that synergize multiple digital levers to improve KPIs. These solutions are easy to deploy, and at the same time modular and scalable to address the varying needs of the organization. The suite's value builders include an edge orchestrator, edge command center, and edge manager. Gain complete visibility and control of your edge infrastructure TCS' edge computing services empower your enterprise to manage data, storage and control your globally spread edge deployments seamlessly. Deliver hyper-personalized experience Make intelligent decisions Improve operational efficiency Optimize costs Soar to success with TCS' intelligent edge computing services. TCS Edge Computing Services deliver an end-to-end strategy and solution for enterprises to design, implement, and manage their edge computing landscape and seamlessly perform remote operations. An illustration depicting various edge computing services such as Cognitive, Edge secOps, PaaS, and Converge. It also lists the services offered, such as export advisory services, services/platforms, and edge solutions. Value-Based Real-Time Care Delivery At the edge of digital innovation Why 5G and edge computing are key to retail success Advancing edge computing capabilities with neuromorphic For more information on our Edge capabilities Theme Font size Line height ======================

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TCS Disaster Recovery Automation Offering

Service Unlock Business Agility and Future-ready Operations with TCS Related reading Transformation starts here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cognitive Business Operations / solution You have these already downloaded We have sent you a copy of the report to your email again. CHALLENGE With increasing dependence of business operations on IT resources, disaster recovery (DR) programs are key to ensuring business continuity. However, existing DR management systems are wrought with complex, time-consuming IT recovery processes, leading to high recovery time objective (RTO). Further, companies are unable to align their DR systems to the rapidly changing business and compliance environment due to lack of regular DR drills and comprehensive failover testing. TCS SOLUTION TCS' Disaster Recovery Automation Offering helps companies streamline and automate their IT recovery processes by providing end-to-end services across consulting, architecture design, implementation, and support. It comes with a rich library of APIs that enables smooth integration with diverse technology platforms in a multi-vendor IT environment. Other salient features include: BENEFITS   TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform

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TCS' services for unified communication and contact centers

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part of a legacy system, or a combination thereof. Working in silos leads to inconsistencies in service. TCS SOLUTION TCS' services for unified communication and contact centers integrate business components in one system. Key features: Customized IVR application development and integration: can be integrated with 3rd party applications to consolidate data in one system. Reporting and CRM integration: any key data, including recent orders, account number, etc. can be accessed in a single dashboard. Ticketing tool integration: allows auto preview of customer issues and complete issue tracking. Tools development and integration: custom developed business specific tools like Auto provisioning, Ticket analyzing, etc. can be integrated to achieve the customer SLA. Multichannel and Social media integration: customers get a choice of contact options—voice, email, SMS, social media, etc. BENEFITS Integrate hardware, software, and sub systems from multiple vendors Store customer data in a single, unified repository Deliver seamless and omni-channel customer experience through integrated tools Provide customized implementations with scripts and internal tools Improve the system's productivity Harness data to manage creative outbound campaigns better TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? =====================

TCS Cognix™: Accelerating digital transformation

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releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. COGNITIVE BUSINESS OPERATIONS / SOLUTION You have these already downloaded We have sent you a copy of the report to your email again. The wide range of technologies and tools, such as automation, AI, analytics, and blockchain, can help enterprises optimize operations. However, often these powerful technologies end up confusing enterprises, which limits their ability to scale and slows the deployment of digital solutions. TCS Cognix addresses these challenges and provides a collaboration suite that accelerates enterprise digital transformation, allowing enterprises to adopt new business models more easily. TCS Cognix identifies new ecosystems and supports enterprises on their continuous innovation journey. Research indicates more than 70% of enterprises view organizational structure as a barrier to scaling their digital initiatives. In the era of Business 4.0™, the rise of digital technologies has upended countless industries. To leverage the behaviors and technology pillars needed to adapt to this changing landscape, you need partners who can synergize integrated operations and orchestrate digital solutions spurring superior business outcomes. TCS Cognix, an AI-driven human-machine collaboration suite powered by Machine First Delivery Model (MFDM™), accelerates enterprise digital transformation using an ecosystem of pre-built solutions. It unlocks the immense value at the intersection of business process, IT infrastructure, and various applications. The collaboration suite also organizes the digital technology ecosystem in an innovative, modular, and logical manner, which helps organizations gain a competitive edge. TCS Cognix is an AI-driven human-machine collaboration suite for accelerated enterprise digital transformation. It includes: Reimagine, reinvent and re-align to purpose-driven growth while delivering superior customer experience. With TCS' Cognix, businesses can reap the following benefits: Exponential business outcomes: Increase agility and efficiency: Enhance experiences for customers and employees: Introduce new business models: Enable perpetual innovation: Gain cross-industry contextual knowledge based on actionable insights Accelerate digital transformation Ready to unlock value with cognitive, integrated operations? Theme Font size Line height ======================

TCS Cognix™ Platform: Multi-tenant platform for futuristic growth

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artificial intelligence and machine learning by blending disparate interconnected business systems, processes, and infrastructure to drive smart decisions and transform operations. Drive service resilience, business agility and enhanced customer experience with futuristic IT services. TCS Cognix Platform helps enterprises accelerate IT infrastructure transformations, enabling greater operational efficiency and agility through the following features: Integrated operations: Enables integration through automated, agile, secure, and compliant operations across data center, digital workspace, and network and service management. Ready-to-consume value builders: Uses 100+ out-of-box automation use cases and AI-ML-driven value builders across industries, enabling faster benefit realization with seamless integration of third-party tools. Business contextualization: Helps tightly coupled IT and business operations predict, prescribe, and remediate performance issues or failures that can impact operations. Metric-driven governance: Offers end-to-end ownership with agile, unified governance that helps to deliver resilient operations, adopting a zero-incident culture. Achieve synergized operations With TCS' Cognix Platform, businesses can reap the following benefits: Increased business value Faster and more secure response Easy integration and rapid onboarding Cost optimization Accuracy in predicting disruptions in business operations Platform availability with enhanced response speed Faster service desk response rate using TCS MFDM™ Faster onboarding and simpler contracting Decrease in overall mean time to repair (MTTR) leading to cost efficiencies Cost optimization across integrated business operations Ensure seamless integration of service models into businesses. Modular, scalable solutions: TCS Cognix Platform is designed to deliver service resiliency, business agility, and enhanced user experience to organizations at optimized costs. Our Machine First Delivery Model (MFDM™) enables horizontal and vertical scaling and modular growth faster. Contextual knowledge across domains: TCS' AI automation masters across 14 industries offer extensive automation and IT expertise. Flexibility and transparency: Our insights-based operations allow leaders visibility into the health of their operations. Leadership in digital delivery solutions: TCS is recognized as the leader in next-generation infrastructure services by renowned global analysts, such as Forrester, Gartner, ISG, and HFS. Accelerate IT infrastructure TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? Theme Font size Line height
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Ensure smooth experience with CX Performance Services

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(rehost, refactor, replatform). Maximize customer experience with robust application performance led by our CX Assurance Performance Services. Enhance business outcomes: Machine-led and on-demand quality engineering services deliver superior experiences resulting in increased customer visits, lesser bounce rates, and higher conversions. Minimize capital expenditure: Avail our solution, based on a self-service and zero capex platform (with embedded automation) in a 'pay-as-you-go' model to enjoy first time right quality. Improve productivity: Up to 70% improvement in productivity of report generation and 20% overall improvement in productivity through life cycle automation. An industry first—a machine-driven approach that maximizes customer experience by improving application performance. Our innovation and industry experience allows you to gain: TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? Theme Font size Line height =====================

Digital Finance and Accounting Services

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impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Service You have these already downloaded We have sent you a copy of the report to your email again. Intelligent digital finance solutions enabled by TCS Cognix™ A major problem faced by enterprises across the globe has been the lack of real-time visibility into operational and commercial transactions and the failure to access decision support and actionable insights derived from existing data. Besides, the partial and siloed implementation of digital technologies has also led to an extended cycle time for core transactions. Meanwhile, emerging digital technologies, coupled with diverse products, also leads to delays in decision-making. Powered by the Machine First™ Delivery Model (MFDM™) and TCS CogniX™, TCS Digital Finance and Accounting Services helps enterprises drive business outcomes across the finance function to improve working capital, optimize cash flow, and provide an enhanced experience to users. Using cognitive machine learning capabilities, the solution elevates user experience and improves processing productivity and accuracy. The advanced process optimization layer acts as an augmentation layer to increase the maturity of advisory bots, while the readily deployable persona-enabled CFO dashboards are helpful for interactive visualization. The services also include a real-time finance cycle to enhance key finance-based processes. TCS Digital Finance and Accounting Services also provide real-time decision support and plug-and-play visualization models to drive effective business outcomes. By leveraging TCS Digital Finance and Accounting Services, enterprises worldwide can reap the following benefits: Reduce TCO by 50-60% through automation and low transactional cost Change their approach to predictive, intelligent, and proactive with MFDMTM Improve working capital and optimize cash management Increase revenue through orchestration of digital technologies Foster collaboration and drive behavioral consistency with digital systems Drive agility through insight-driven decision support and reporting model TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations?
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TCS Smart Quality Engineering Platform

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Harness AI and machine learning to achieve high application quality at speed. The features include defect prediction, natural language processing and artificial neural network-led test suite optimization, duplicate test case elimination, duplicate defect analysis, automation failure analysis, automated defect triaging, and automated root cause analysis. Assure AI: Validate the AI algorithm bridge and trust deficit to give users the confidence that AI systems are making accurate decisions. The features include conversational system testing, model/algorithm validation, functional and end-to-end chatbot testing, and data bias detection. Release orchestration: Digitized release workflow leading to CI/CD with quantitative assessment of release quality. Test environment management: Improved governance through workflow-based approvals for environment reservation/ scheduling and on demand provisioning to cater to growing environment needs. Stability of the test environments is ensured through monitoring and health checks. Test data management: Automate refresh processes through on demand provisioning, test data orchestration, data consumption enabled through entity/query-based test data mining, data governance through reservation, and change impact automation through proactive data model change tracking capabilities. A figure illustrating the various capabilities of TCS' SQE, such as Xtreme automation, adaptive release pipeline, change impact analysis, test data analytics and data model tracking, auto-remediation, test suite optimization and dynamic RCA, contextual insights and recommendations, and QE BoTs. The TCS Smart Quality Engineering Platform helps organizations fulfill their quality engineering transformation objectives and delivers the following benefits: Engineered quality: Eliminate waste through analytics and LEAN models. Achieve up to 40% reduction in quality costs. Collaboration across units: Enable seamless handover and cut down on manual dependencies using bots. Accelerated deployment: Increase business agility with intelligent automation throughout the quality pipeline, reduce cycle times by around 35%, and save more than 60% effort in chatbot test automation. End-to-end orchestration: Test the environments' build, deployment certainty, and test data services right from data profiling through to data provisioning. Transform your quality landscape with our industry-first, platform driven approach. We deliver industry-leading solutions and seamless transformation experiences to our customers. Flexible, modular solutions: Our outcome-driven platform is modular with the ability to deliver AI testing services. Intelligent platform: The AI studio embedded in the platform is an adaptive solution that incorporates AI-ML capabilities to provide an intellectual edge. Industry-leading expertise: We are recognized as a pioneer in implementing AI in the quality engineering space. Innovation-led approach: We have extensive research and development experience and dedicated labs that support emerging technologies. Robust ecosystem: Our user-friendly solution comprises best-in-class tools to drive superior quality engineering capabilities. TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? Theme Font size Line height

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Drive employee engagement with TCS' Cognitive HR

Highlights In this article Overview Solution Benefits The TCS advantage TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Redefine talent management to build future workforces. Cognitive HR changes the rules of talent management. Ensure employee engagement. We understand HR—and your industry. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. As acquiring the right skills at the right time and place becomes more critical, it's imperative for human resources (HR) to choose the best in business and retain world-class talent. High attrition rates lead to increased hiring and training costs, and disrupt business processes. Organizations must invest in their employees by providing an atmosphere of all-round professional development through continuous learning and upskilling. In addition, replacing legacy systems and manual processes with a digital HR solution can simplify complex processes, transform talent acquisition practices, and provide personalized employee experiences. TCS' Cognitive HR solution utilizes our HR domain knowledge and is integrated with cognitive levers to address modern-day challenges in human resource management. Overcoming the hurdles of 'too much data' and 'very little insights', Cognitive HR enhances human expertise and

judgment by mining data more accurately, which, in turn, improves the capabilities of HR functions in any organization. Built on TCS Cognix™, with an AI-driven human-machine collaboration suite powered by MFDM™, the platform offers a slew of services across the 'hire to retire' life cycle. It: TCS' Cognitive HR uses new-age technologies such as virtual assistants, prescriptive and predictive analytics, natural language processing, and chatbots to deliver multifold benefits: By partnering with TCS, organizations can create an effective and efficient workplace. TCS' Cognitive HR solution enhances human expertise and judgment by mining data more accurately, which, in turn, improves the capabilities of HR functions in any organization. The six design tenets of future-ready operations Rethink budgeting with a digital-first mindset Transforming CX with smart virtual assistants Rethink budgeting with a digital-first mindset Theme Font size Line height =====================

TCS Cognix™ for Digital Workspace Services

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TCS. Discover our press releases, reports, and company announcements. Enhance employee experience for increased productivity You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are looking to leverage digital experience management and workplace analytics capabilities to transform business operations. However, with the rise in complexity of end user IT services, IT departments lack visibility of the end user infrastructure, activity, and experience. IT departments find it difficult to adjust as employees join and leave companies at a rapid pace and use local, on-premise, and SaaS applications which causes work disruption and reduced flexibility to work from anywhere and at any time. The inability to access resources and deliver on time often leads to disappointment. TCS CognixTM for Digital Workspace Services enable intuitive, immersive, and intelligent workspaces to enrich employee experiences and help them improve productivity levels. With an array of easy-to-deploy, modular, and scalable 'value builders', we bring multiple digital levers together to enable a zero-touch IT and next-gen workplace. Key features include: With TCS CognixTM for Digital Workspace Services, enterprises can achieve the following: TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX Digital Finance: 5 Key and Actionable Ways to Unlock New Value TCS Cognix for Network: Enabling Network Transformation Want to deliver memorable experiences to your customers? Theme Font size Line height =====================

TCS Cognix™ Storage as a Service

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every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. cognitive business operations / solution Scale the enterprise storage footprint You have these already downloaded We have sent you a copy of the report to your email again.   Data management and monitoring is becoming cumbersome for IT managers due to an exponential increase in data volume. Organizations have limited budget to procure storage to accommodate the continual and unpredictable growth of data. Insufficient storage and inflexibility can also increase the time-to-market. Further, unplanned migrations put a burden on company bottom lines, resulting in big financial loss due to downtime. In addition, managing new data formats while utilizing the data from legacy storage platforms is also a complex task. TCS CognixTM Storage as a Service enables data management and allows enterprises to scale their storage footprint as required. The solution provides real-time insights to monitor, control and manage data storage, and improves data quality to enable greater data management efficiency. It provides the following solutions: The solution ensures a high level of service availability and productivity with minimum disruption. The solution provides the following benefits to enterprises: TCS Positioned as a Leader in Everest Group's MPHRO PEAK Matrix®2024 TCS Digital Mortgage Suite: Driving Growth with Better CX TCS Positioned as a Leader in IDC MarketScape for Worldwide Enterprise Analytics and AI Business Process Services for Finance and Accounting 2024 Building Resilient and Sustainable Global Supply Chains Ready to unlock value with cognitive, integrated operations? =====================

TCS Cognix™ for Networks

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and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. COGNITIVE BUSINESS OPERATIONS / SOLUTION Drive network connectivity and human-machine collaboration with our suite of offerings powered by AI and TCS' pre-built solutions. You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are looking for ways to overcome the operational challenges that come with using legacy networking hardware in a heterogeneous networking environment. Many enterprises use a heterogeneous networking environment with legacy networking hardware; multiple vendors; workloads distributed across on-premise, public and hybrid cloud; and multi-domain protocol solutions. Then, there are users accessing the network from managed devices as well as unmanaged personal devices. The lack of a single management pane due to multiple enterprise network monitoring and management tools for different network solutions such as for local area network (LAN), wireless local area network (WLAN), and wide area network (WAN), for security, and data centers leads to network quality of service (QoS) adherence deviations and a higher mean time to recovery, impacting the overall user experience. With TCS Cognix™ for Networks—powered by AI and ML, generative AI, and a range of our proprietary pre-built solutions—we help enterprises realize a fully autonomous network operating center, enhanced network performance, improved observability, and higher operational efficiency. An illustration showing the spectrum of enterprise network and security solutions and services that TCS Cognix™ for Networks covers. It encompasses advisory and consultancy, architecture and design, implementation and migration, validation and hypercare, management and operation, and continuous improvement. In other words, it covers the entire lifecycle management for network infrastructure. Strong governance, catalog-based services, multi-tenant platforms, automated operations, standardized delivery, and focus on moving from SLA-based operations to experience-level agreement-based operations are core to it. A fusion of cognitive enterprise network and security solutions and services We offer a range of network and security offerings for next-generation automation, superior user experience, and unified network governance. TCS Cognix™ for Networks is a suite of network and security offerings encompassing advisory and consulting, architecture and design, implementation and migration, validation, and managed network services. We offer next-generation automation, superior user experience, and a unified governance for networks—delivered using

our standardized delivery platform and service catalog approach for adopting industrial Internet of Things–operational technology (IIOT-OT), multi-cloud network, DC network, intelligent branch networks, software-defined WAN (SD-WAN), private 5G/LTE, and more. TCS Cognix™ for Networks covers the following: An illustration of our next-gen network offerings including private mobile network, network as a service, managed security, managed network services, SDx transformation, and network delivery platforms. A suite of offerings powered by AI and TCS' pre-built solutions With TCS Cognix for Networks, enterprises can empower themselves to: A partnership with TCS comes with the following advantages: TCS CognixTM Platform: Building Service Resiliency & Business Agility TCS MFDM™ for CFOs: Predictive, Proactive Digital Finance & Accounting Reimagine Employee Management Process with TCS Cognitive HR Solution TCS Cognix™: Accelerating digital transformation Ready to secure your digital estate? Theme Font size Line height

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TCS Edge Computing Services

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walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cognitive Business Operations / solution You have these already downloaded We have sent you a copy of the report to your email again. Processing at the edge Today's businesses generate a huge amount of data. Typically, enterprises need to tap into insights from such data to improve operations and make quick real-time decisions. By automating operations and improving customer experience they can improve operational efficiencies. Building a strong digital core with 5G, Artificial Intelligence (AI), Machine Language (ML), eXtended Reality (XR), and the Internet of Things (IoT) is the key to success. TCS' edge computing services help enterprises reduce latency in IT operations, minimize data vulnerabilities from cyber-attacks, and drive performance at optimal levels. This helps in improving application performance and enriching user experience as edge solutions take both applications and data closer to the user. For example, content delivery by digital media and entertainment houses requires the development of solutions with low latency capabilities. Unlock next-gen performance Deploy an end-to-end strategy focused on achieving scale, security, and connectivity by leveraging cognitive computing, and autonomous operations. TCS' edge computing services are powered by the following capabilities: Expert advisory: Helps discover edge computing use cases that can boost business performance. We bring our contextual expertise to create edge strategies, business cases, and infrastructure choices for clients' edge transformation. For a provider of automation solutions for smart buildings based in Japan, TCS helped to make choices of infrastructure and features required for a centralized orchestration platform to manage their remote BMS systems. TCS created POC of remote onboarding, simultaneous application deployment, and monitoring for two of their remote sites using TCS' edge studio. Services: Design, build, deploy, and manage services around edge applications, networking, and security with the following: Platform (Platform as a Service Edge): We help customers in designing, architecting, and building scalable edge platforms for their end customers. We collaborate with our partners to choose the right technology and validate designs and roadmap features for the platform. This integrated management platform enables edge orchestration, security, and provisioning. Industry solutions: Provides edge-enabled industry solutions such as industrial worker safety, oil rig predictive maintenance, plant manufacturing quality inspection, and banking branch-in-a-box. We collaborate with cross-functional industry and technology teams to bring solutions like TCS Retail Omni-store products on edge for enhancement of the in-store experience. Similarly, we provide smart factory solutions such as cognitive quality assurance on the factory edge for improving productivity. TCS Cognix™ for edge carries a vast collection of 'value builders' – pre-built, configurable, reusable digital solutions that synergize multiple digital levers to improve KPIs. These solutions are easy to deploy, and at the same time modular and scalable to address the varying needs of the organization. The suite's value builders include an edge orchestrator, edge command center, and edge manager. Gain complete visibility and control of your edge infrastructure TCS' edge computing services empower your enterprise to manage data, storage and control your globally spread edge deployments seamlessly. Deliver hyper-personalized experience Make intelligent decisions Improve operational efficiency

Optimize costs Soar to success with TCS' intelligent edge computing services. TCS Edge Computing Services deliver an end-to-end strategy and solution for enterprises to design, implement, and manage their edge computing landscape and seamlessly perform remote operations. An illustration depicting various edge computing services such as Cognitive, Edge secOps, PaaS, and Converge. It also lists the services offered, such as export advisory services, services/platforms, and edge solutions. Value-Based Real-Time Care Delivery At the edge of digital innovation Why 5G and edge computing are key to retail success Advancing edge computing capabilities with neuromorphic For more information on our Edge capabilities Theme Font size Line height =====================

Lufthansa realizes futuristic finance operating model

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and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Lufthansa Group Business Services set out to overhaul finance and accounting for improved agility, reliability, and value creation. It wanted to align the function with the group's strategic imperatives—safeguard market leadership, and focus on cost, operational stability, and reliability through innovation and digitization. Its aim was to maximize synergies between different operating companies for scale and efficiency. With multiple group airlines—Lufthansa, Swiss, Brussels, Austrian and Eurowings—the revenue accounting processes were disparate with multiple country specifications. Lufthansa Group Business Services (LGBS) provides finance and accounting services, among others, to the group. Together with LGBS, TCS experts, armed with airline experience and contextual knowledge of client's processes, undertook a harmonization study to identify inconsistencies and potential areas of optimization of the revenue accounting activities covering seven different processes across eight global sites. As a result, an agile and unified operating model was created, seamlessly integrating revenue accounting services of all Lufthansa Group airlines. Through multiple proactive projects and by setting up a process excellence and coaching hub, TCS helped LGBS drive agility and efficiencies. As a trusted partner, in the midst of the COVID pandemic, TCS helped LGBS scale up operations swiftly to process the over 500% surge in refund requests, thereby fulfilling group airlines' passenger commitments and improving their brand reputation. The LGBS' decision to extend the partnership by five more years is a testimony to the proven partnership and value delivered. of Process-improvement initiatives business value delivered Improvement TCS is a dependable partner. Pleased to extend our transformational journey. Marc Emcke TCS CognixTM Platform: Building Service Resiliency & Business Agility The Six Design Tenets of Future-ready Enterprise Operations TCS MFDM™ for CFOs: Predictive, Proactive Digital Finance & Accounting Reimagine Employee Management Process with TCS Cognitive HR Solution Ready to unlock value with cognitive, integrated operations? Theme Font size Line height =====================

Clariant Boosts Efficiency of Regulatory Affairs

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remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Clariant wanted to streamline operations to maximize compliance and customer value. TCS simplifies regulatory process transformation and governance. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cognitive Business Operations / case study TCS-Clariant partnership transforms product stewardship to improve quality and reduce risk. You have these already downloaded We have sent you a copy of the report to your email again.   In the dynamic and highly competitive world of specialty chemical manufacturing, being innovative and customer-focused was key to Clariant's success. They wanted to create customer value by improving their products and services delivery, as well as adhering to, and surpassing, strict regulatory guidelines. This required them to consolidate their operations and increase efficiency. They also wanted to gain greater visibility into their compliance processes and optimize the underlying resource allocation and management function.   TCS analyzed Clariant's existing regulatory setup, using our ValueBPS™ approach. TCS' ValueBPS™ enables superior business outcomes by leveraging operations redesign through PIBS™, FORE™ simplification methodology and TRAPEZE™ suite of solution accelerators. Our PIBS™ consulting framework benchmarked the existing process performance against industry best practices. It gave Clariant a detailed view of process risks and maturity in arriving at the sourcing strategy. Our FORE™ simplification methodology identified the process maturity levels of the existing layout, defined the desired 'to be' state, and helped them to draw up an implementation roadmap. Our TRAPEZE™ suite of solution accelerators enabled driving operational rigor and implementing changes faster.   Product stewardship transformation helped Clariant enhance their regulatory processing services.   With our experienced specialists, TCS ensured uninterrupted delivery of high-level product stewardship services. A detailed plan was drawn up to implement a risk-free and seamless process transition, including deployment of best practices in risk and governance. Overall, the product stewardship transformation helped Clariant industrialize their regulatory processing services. TCS Intelligent Edge Computing Services: Unlock Next-gen Performance

Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? Theme Font size Line height ======================

NEST Helps Millions Save for Retirement

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to ensure that it effectively managed the demand from UK employers looking to enroll their eligible workers. How could a nation-wide pension provider sign up and serve millions of members, while simultaneously managing the operating cost? "We used our smart process consulting approach to reduce the cost of service, increase efficiency, and enhance customer experience for NEST. TCS Insurance BaNCS™ platform was at the heart of the solution to support all mainstream business processes." We launched an innovative pension scheme that made the automatic enrolment process seamless and flexible enough to handle the rush of new employers and member signups. A first in the UK pensions industry, our responsive, process-oriented solution: Introduced user-friendly features such as web services that integrated with payroll provider software, live webchats, and Interactive Voice Response (IVR)—to simplify and improve customer experience. Over 200,000 employers are signed up to NEST. Eliminated the need for paper transactions, and reduced the need for customer contact by using insights to continually improve our online help. Could scale with the growth of customer usage and keep data secure. As NEST's scheme administrator and solution partner, TCS continues to provide innovative administration services to help the pension provider deliver on their business objectives within budget. TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? Theme Font size Line height =====================

IDC case study highlights TCS' role in AGL's cloud success

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the future. Derive cloud value faster with the right partners. YOUR CHALLENGE TCS Clever Energy™ AI-based energy emission and management system that helps decrease carbon emissions Learn more about   TCS Clever Energy™ TCS Connected Worker AI- and analytics-based solution to improve the productivity of field workers while ensuring their safety Learn more   about   TCS Connected Worker TCS Energy Value Ecosystem A platform for utilities to build personalized energy services in collaboration with peers, suppliers, and customers Learn more   about   TCS Energy Value Ecosystem YOUR CHALLENGE TCS Clever Energy™ AI-based energy emission and management system that helps decrease carbon emissions Learn more   about   TCS Clever Energy™ TCS Connected Worker AI- and analytics-based solution to improve the productivity of field workers while ensuring their safety Learn more   about   TCS Connected Worker TCS Energy Value Ecosystem A platform for utilities to build personalized energy services in collaboration with peers, suppliers, and customers Learn more about   TCS Energy Value Ecosystem Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. In a recently published case study, IDC has highlighted TCS' work with hybrid cloud provider NetApp on an infrastructure transformation project for energy company AGL. AGL is a 180-year-old integrated energy company that delivers gas, electricity, and telecommunications services to residential, business, and wholesale customers across Australia. AGL wanted to migrate all its applications to a public cloud by 2022 for storage optimization. By doing so, it also aimed to improve energy efficiency and reduce its carbon footprint through less dependency on data centers. AGL partnered with TCS and NetApp to build a digital core with cloud as the unifying fabric. The modernization has helped AGL move away from on-premise to cloud-based storage to become a sustainable enterprise.   In the case study, IDC highlights how TCS' with a decade-old partnership with AGL, leveraged deep contextual knowledge of the client's business to provide significant contribution to the project's success. "…TCS could come up with ideas for a solution to pitch to AGL. The infrastructure includes the hardware and software layer being transformed by TCS and on which they build, run, and manage services,"

according to the case study. "This allowed AGL to initiate the project storage optimization. Solution design and architecture were done closely in collaboration with TCS and NetApp. Although the project was managed by AGL, it was assisted by TCS and NetApp. It is highly unlikely that the project would have come together and been executed so successfully without this degree of collaboration." Close cooperation and collaboration between AGL, TCS, and NetApp ensured a successful storage optimization along with cloud storage migration. Dr. Glen Duncan, associate research director, Datacenter, IDC Achieve scalability, flexibility, and attain higher efficiencies. The partnership has paid off well for AGL. In the IDC case study, Dr. Glen Duncan, associate research director, Datacenter, IDC, says: AGL is now able to enjoy all the benefits of cloud including scalability, flexibility, and consumption-based pricing models that have resulted in significant savings for the company. Each cloud journey is unique; a partner with contextual knowledge can make a difference. For successful cloud transformations, IDC recommends that whenever possible, companies should engage with partners who have a good understanding of their contextual environment as well as the technical solutions. IDC also recommends looking for a proven innovative culture and the ability to assist in quantifying the environmental benefits of cloud migration. Driving energy efficiency Managing field assets Creating new sources of revenue AI-based energy emission and management system that helps decrease carbon emissions AI- and analytics-based solution to improve the productivity of field workers while ensuring their safety GE Predix Cloud-based solution for round-the-clock surveillance of pipelines A platform for utilities to build personalized energy services in collaboration with peers, suppliers, and customers Driving energy efficiency AI-based energy emission and management system that helps decrease carbon emissions Managing field assets AI- and analytics-based solution to improve the productivity of field workers while ensuring their safety GE Predix Cloud-based solution for round-the-clock surveillance of pipelines Creating new sources of revenue A platform for utilities to build personalized energy services in collaboration with peers, suppliers, and customers TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? Theme Font size Line height =====================

Citibank UK Improves Digital Banking

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Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Ready to unlock value with cognitive, integrated operations? Theme Font size Line height =====================

Morrisons transforms HR ops to improve colleague experience

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payroll operations Morrisons selected TCS as a partner in this journey for our deep contextual know-how, platform expertise, and consultative approach to digital improvement, automation, and innovation. The transformation roadmap drawn up collaboratively by TCS and Morrison envisages a future-ready operating model for the latter's payroll operations underpinned by process re-imagination and digital enablement. To deliver on this transformation, TCS leveraged Cognix™, an AI-driven human-machine collaboration suite that brings its vast ecosystem of pre-built digital solutions to accelerate value realization. The solution provides actionable insights on employee data enabling improved decision-making and governance and allows automation of transactional activities such as payroll reconciliations and overpayment calculations. It also enables AI-powered chatbots for effective employee query resolution. Morrisons has enhanced its ability to support and mobilize its workforce and ultimately deliver better service to its customers Morrisons constantly evolves and modernizes for the benefit of its colleagues, who will now benefit from a more effective, informative, easy-to-use people and payroll operation. By adopting an employee-centric approach, TCS will help Morrisons improve its HR and payroll operations to unlock immense business value. At Morrisons, we're committed to continually improving the experience for our colleagues, enabled through simpler people processes, automating and speeding up core activities, introducing greater self-service options, and targeting improved service levels. We selected TCS as our partner in this journey for their innovative digital capabilities powered by TCS Cognix™, relevant contextual knowledge, and proven track record of delivering consistently high standards for their customers Andi Cotterell, Head of People TCS Cognitive HR: Reimagining the HR Function for Better EX Reimagining Human Resource Operations with Innovation & AI TCS to Help CEMEX Transform Workforce Experience TCS Recognized as a Leader in Multi-Process Human Resources Outsourcing Services by Everest Group We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

The six design tenets of future-ready operations

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Newsroom TCS works hand in hand with world-leading investors. Goodbye silos Develop an agile mindset Maintain digital momentum Embrace secure by design Prioritize competitive workspaces and skill sets Drive ecosystem partnerships Ashok Pai Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Ashok Pai Senior Vice President and Global Head, Cognitive Business Operations, TCS You have these already downloaded We have sent you a copy of the report to your email again. Enterprise operations are a balance of growth and risk, and leaders are understandably wary of disruption. But, as technology continues to transform the global economy, roles and expectations rapidly evolve as well. Change is as necessary as it is inevitable. For many organizations disruption—and its partner innovation—already ushered in an era of exponential business value. According to the 2021 TCS Global Leadership Study, organizations rank innovation as a cultural priority—above shareholder value and financial performance. After all, the ability to innovate frequently drives business success. But, when the world is changing at a seemingly break-neck pace, how do you determine business models and processes that promise results? While each organization's requirements vary, there are six key elements that consistently enable successful operations and drive growth. Goodbye silos Siloed IT, IT infrastructure, and business operations – the three operational arms – can hinder forward progress.   How do you smash the silos? Enterprises do this can gain a significant edge. For example, a leading Asia-Pacific-based utility provider launched a new, integrated approach across its operations to enable digital transformation across the customer onboarding, meter to cash, and retention value chain. The result: >90% customer satisfaction, reduced service costs, and a significant improvement in cash flow. Win-win-win. Develop an agile mindset An agile team responds well to change and makes incremental improvements using collaboration and collective wisdom. Teach your teams to think in sprints – cut big challenges down to bite-sized pieces and tackle each component in a two- or three-week time-boxed approach. Gather ideas and insight from every corner of the business, too – from your interns to your C-suite. Great, problem-solving ideas are bound by department or title. (This goes hand-in-hand with smashing silos). And keep all stakeholders in the loop at every step. For

example, a global market research firm faced a longer lead time for a critical activity. Agile methodologies and problem-solving techniques helped the team halve their lead time. And multiple sprints resulted in a faster time to market and prevented losses of more than US$200k. Maintain digital momentum A TCS survey of nearly 300 large companies found that, despite upheaval during the first few months of the pandemic, 90% of organizations maintained or even increased digital investments. Need to know where you should focus to keep a strong digital core? Embrace secure by design The 2021 World Economic Forum's Global Risk Report confirms that cybersecurity failure is one of the top 10 global risks by likelihood, and IT Infrastructure breakdown is one of the top 10 global risks by impact.   A layered security architecture helps align business strategy, regulatory compliance needs, and cybersecurity standards. An example: A large Europe-based financial services organization needed to fulfil GDPR data privacy regulations and data protection requirements. During development operations they reduced overall provisioning time by 70%, and delivered advanced cyber threat intelligence, analytics, orchestration and automation. Prioritize competitive workspaces and skill sets While enterprises are rapidly shifting their focus to virtual environments. At the same time, traditional skillsets are evolving as digital technologies scale within enterprises. Drive ecosystem partnerships Evolving consumer expectations reflect a need for an end-to-end services provider. As boundaries disappear and businesses converge, operations must connect ecosystem partners across boundaries to provide seamless, end-to-end services. This requirement may well prove more of a mind shift challenge than a technological one. Competitors often have the critical resources needed to achieve an integrated, end-to-end experience. This requires a level of collaboration not all organizations will want to embrace. In the TCS Study, just over half (51%) of those surveyed report collaborating with competitors. This reluctance will likely change as the benefits become more evident. The 'Leaders' (in the study) are more willing to collaborate with competitors than their counterparts (80% versus 23%). An example: A leading telecom player successfully integrated an ecosystem of operations partners at the back-end to manage multiple onboarding aspects, from fiber layout design to service installation to field service engineers to provide a delightful onboarding experience.   Shifts in customer behavior, workplaces, and supply chains give enterprise operations a unique opportunity to reimagine the future and better— and more digital—ways of working. The key elements outlined in these articles identify proven, practical next steps from leading companies who are already embracing and leveraging disruption to their advantage. TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height ======================

Digital transformation is more than technology adoption

Services Unlock Business Agility and Future-ready Operations with TCS Highlights In this article THE DIGITAL DIP THE FOUR ELEMENTS GET AGILE THE RIGHT APPROACH About the author Related reading Stay in the know TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Ashok Pai Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Ashok Pai Senior Vice President and Global Head, Cognitive Business Operations, TCS You have these already downloaded We have sent you a copy of the report to your email again.   The secret to success is carefully treading the tight rope between technology upgrades and sweeping operating model changes. Each needs the ideal balance of attention. Too much focus on technology and too little on the operating model will, after initial success, land the enterprise in the middle of a digital dip. This digital dip is typically caused by a siloed approach, limited ability to glean meaningful insights from data, transformation fatigue, KPI confusion, conflicting stakeholder views, and poor user adoption. The best way to avoid the digital dip? Remember success across the breadth of the enterprise is the objective. For results that stick, technology transformation must be driven by a comprehensive IT and operations framework rooted on agility, analytics, automation, and cloud. Keep everyone in the know and provide a clear roadmap, success metrics,

and objective. Everyone in the organization must be on the same page armed with the same information and driving toward the same goal. Collaboration, training, and feedback loops are important too. Foster an environment where everyone feels their voice and observations are valued, considered, and acted on. To create future-ready operations, an integrated approach is essential. This has four elements: The insights and automated tasks enabled by this shift will further introduce technologies that can make processes faster, more accurate, and less expensive. To embrace a cognitive and integrated operations approach, switch from being process-centric to being data-centric. This means automating not just the operations, but the delivery of insights. Machine learning, AI, and advanced analytics capabilities can today be used to identify and fix inefficiencies without having to overhaul the entire business operations. Filling orders, responding to customers, and ordering supplies can—and should—happen without human intervention. Systems supporting a cognitive operation can also provide alerts that predict problems before they occur and provide insights to perform tasks that machines cannot. Business transformation requires cultural change, access to differentiated talent, a plan to upskill existing talent and, most importantly, long-term commitment. Governance is critical and enterprises need to measure value through evolving metrics. Be agile, innovative, and forever evolving: Majority of enterprises believe organizational structure is a barrier to digital scaling. Digital command centers play an active role in enterprise-wide adoption and scaling of innovation. Have flexibility, balance risk, and innovate: Rapidly iterative and adjusting journey cycles will help balance risk and boost flexibility. Foster ownership, experimentation, and collaboration: Ownership-driven culture with focus on experimentation. Leadership buy-in for cross-stakeholder alignment. Achieve collaborative innovation across silos and iterative improvements. Enterprises can become digital natives through an enterprise-level or a function-level transformation. The right mix depends on factors like business health, industry disruption, and digital talent availability. Whether your business model is at risk of disruption or you want to elevate your enterprise, the prescription is the same: digital transformation. But you have to reengineer your business processes to extract the maximum technological benefit and look at the following: What's your experience? Which changes got you the best results? What's the biggest lesson in your transformation journey? TCS CognixTM Platform: Building Service Resiliency & Business Agility The Six Design Tenets of Future-ready Enterprise Operations TCS MFDM™ for CFOs: Predictive, Proactive Digital Finance & Accounting Reimagine Employee Management Process with TCS Cognitive HR Solution Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height ======================

Five keys to fuel your future with digital finance

service Unlock Business Agility and Future-ready Operations with TCS Highlights In this article Hello, digital finance Revitalizing finance Future of F&A Transformation in action Related reading Stay in the know TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. ASHOK PAI Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 3 MINS READ ASHOK PAI Senior Vice President and Global Head, Cognitive Business Operations, TCS You have these already downloaded We have sent you a copy of the report to your email again. Digital finance transformation helps CFOs to double down as strategic business partners and drive growth. With changing market dynamics, chief financial officers (CFOs) collaborate with businesses to drive enterprise-wide value. To succeed, CFOs must adopt and exploit digital technologies to build new capabilities.   While finance organizations have embarked on the digital transformation journey, most have not been able to scale and expedite their digital initiatives. The reasons that impede their success are the inability to keep pace with digital trends, a plethora of technologies adding to the complexity of the transformation journey, the persistence of organizational silos, fragmented systems, unavailability of digital talent, lack of customized solutions, and cultural issues, to name a few. For a leading Middle East-based retailer,

leveraging pre-built and customized solutions fast-tracked automation of finance processes and improve visibility into finance and accounting (F&A) operations. Craft a transformation roadmap that drives maximum value. Finance organizations need to be more disruptive and pragmatic on the road to digital transformation. This calls for a more holistic approach, driven by re-imagination and digital enablement of functional and underlying processes backed by domain and contextual know-how. Let's look at five keys that finance leaders need to embrace for a successful digital transformation: Focus on business outcomes: Tie technology innovation to a purpose and link it to specific business challenges or outcomes. Work backward from CFO imperatives, such as improving cash flow and driving cost savings, and tie them back to right-fit technology solutions. Stay on course with the vision that is locked in on outcomes and govern and correct these outcomes with data-driven insights. For instance, a command center solution that provides a holistic view of account payables and receivables, along with cash flow forecast prediction, helps manage the cash situation better. Drive agility in transformation: Speed is key to technology adoption. Deploy pre-configured, contextualized solutions to shorten implementation timelines and avoid cost overruns while creating bespoke solutions. Consider a CFO dashboard based on standard accounting principles such as IFRS, and curated to industry-specific needs and specific personas. It can be easily and rapidly customized and integrated within enterprises Orchestrate the digital ecosystem: Improve results by avoiding piecemeal adoption of technologies that result in suboptimal business outcomes. Instead, leverage a digital orchestration platform that blends these harmoniously and cohesively to deliver better outcomes. Take the case of a smart controller solution with automated controls for actions, which provides a single view of month-end close activities. Combined with automation, AI, and visualization technologies, it helps enhance controllership and equips business stakeholders with relevant insights for strategic decision-making. Build a systematic and customized transformation roadmap: There is no 'one-size-fits-all' solution. Customize your journey based on current digital maturity levels to get to the desired future state faster, and in a more effective and optimized manner. Sophisticated maturity assessment tools infused with market insights can provide clear recommendations to navigate your journey without frictions. Drive perpetual innovation: Adopting a lean startup approach to innovation can help test the waters before embarking on a full-scale transformation. An ecosystem of pre-configured, plug-and-play digital solutions aligned to business outcomes paves the way for such experimental transformation. Also, measure and benchmark performance through data-driven intelligent governance models that allow for course correction and help steer toward the desired state. Pivot your digital finance transformation journey with an AI-driven human-machine paradigm. Today's CFOs cannot quickly scale their digital finance initiatives because of many challenges - siloed operations, a plethora of technologies, talent crunch, cultural issues, and lack of a line of sight to business outcomes. A futuristic paradigm covering the tenets of business outcome focus, agility, digital orchestration, systematic transformation roadmap, and a continuous innovation approach will unlock new value. A leading Middle East-based retailer transforms F&A operations One such successful display of this model was a middle-east retailer that achieved superior business benefits while reducing its critical

month-end close from 13 to 5 days. The years ahead hold great promise for the finance function to create strategic value for organizations. Enterprises with agility and the ability to become digital finance will stay ahead of the curve, improve cash flow, and channel it for growth. TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience TCS Cognix for Network: Enabling Network Transformation Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height =======================

Ushering in New Human Resource Operations for Redefining Tomorrow's Workplace

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A Privacy-by-Design Approach Ensures GDPR Compliance for Smart Products and Services

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enterprises accelerate their supply chain transformations leveraging strong advisory and technology services, contextual knowledge and industry-aligned solutions such as TCS Cognix™, an AI-driven, human-machine collaboration suite powered by its Machine First™ Delivery Model (MFDM™). TCS' consulting-led approach is helping clients respond to global demand volatility, distribution and logistics disruptions, manufacturing interruptions, and supply variability. Its proprietary tools, technology solutions, frameworks, and robust partnerships fuel successful digital transformations for customers. Cognix for Supply Chain unlocks the immense value that lies at the intersection of business process, IT infrastructure, and applications layer. It orchestrates the digital technology ecosystem in an innovative, modular, and logical manner to create an agile, intelligent, digital, and connected supply chain. It accelerates the digital transformation journey using an ecosystem of pre-built, configurable, and reusable digital solutions called Value Builders. Some examples of these Value Builders include buying channel selection tool, order management command center, IoT based logistics tracker and order failure predictor. Other proprietary supply chain solutions include the TCS Intelligent Workforce Management (iWFM), Supply Chain Digital Twin, TCS Robologistics, and TCS Dynachain™, a multi-enterprise ecosystem commerce platform for digital, cognitive, and autonomous supply network management. TCS' industry specific supply chain solutions include TCS Digifleet™, an IoT enabled SaaS for fleet and freights, TCS Omnistore™, for retailers to provide unified customer journeys powered by AI, TCS Optumera™ for merchandising and supply chain optimization, as well as SAP-based blockchain solutions for forestry. Additionally, TCS has partnerships with leading vendors such as SAP, Ariba, Oracle, Blue Yonder, O9, E2Open, DASSAULT SYSTEMES, and Manhattan Associates. "Covid-19 accelerated the demise of linear supply chains and the emergence of supply networks that aspire to be resilient, adaptable, and purposeful. We assessed leading supply chain service providers across a rigorous series of innovation, execution, and voice of the customer criteria to understand who is best positioned to enable supply chains of the future. TCS emerged as one of the Top 10 players with its consulting-led and end-to-end supply chain services inspired by its Machine First Delivery Model (MFDM)," said Saurabh Gupta, President, HFS Research. Tata Consultancy Services is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for over 50 years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions. This is delivered through its unique Location Independent Agile™ delivery model, recognized as a benchmark of excellence in software development. A part of the Tata group, India's largest multinational business group, TCS has over 500,000 of the world's best-trained consultants in 46 countries. The company generated consolidated revenues of US $22.2 billion in the fiscal year ended March 31, 2021 and is listed on the BSE (formerly Bombay Stock Exchange) and the NSE (National Stock Exchange) in India. TCS' proactive stance on climate change and award-winning work with communities across the world have earned it a place in leading sustainability indices such as the MSCI Global Sustainability Index and the FTSE4Good Emerging Index. For more information, visit www.tcs.com.   Asia Pacific Email: sean.davidson@tcs.com Phone: +65

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ecosystem of pre-built solutions. TCS Cognix unlocks the immense value at the intersection of business processes, IT infrastructure, and applications layer and orchestrates the digital technology ecosystem. It also contextualizes solutions by harnessing knowhow from the vast expanse of customer operations. TCS Cognix will help realize a configurable enterprise, enabling organizations to achieve a competitive edge through cognitive operations. "TCS is a Leader in Everest Group's PEAK Matrix® for Intelligent Process Automation solutions in 2021. TCS combines business process domain expertise with its Machine First Delivery Model (MFDM™) to deliver solutions to its clients. Its broad solution portfolio across various IPA components, such as Robotic Process Automation, Intelligent Document Processing, Intelligent Virtual Agents, process mining, and orchestration, combined with its technology and service accelerators and ability to enable scale, differentiate and position it well for success," said Anil Vijayan, Vice President, Everest Group. Tata Consultancy Services is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for over 50 years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions. This is delivered through its unique Location Independent Agile™ delivery model, recognized as a benchmark of excellence in software development. A part of the Tata group, India's largest multinational business group, TCS has over 488,000 of the world's best-trained consultants in 46 countries. The company generated consolidated revenues of US $22.2 billion in the fiscal year ended March 31, 2021, and is listed on the BSE (formerly Bombay Stock Exchange) and the NSE (National Stock Exchange) in India. TCS' proactive stance on climate change and award-winning work with communities across the world have earned it a place in leading sustainability indices such as the MSCI Global Sustainability Index and the FTSE4Good Emerging Index. For more information, visit www.tcs.com and follow TCS news at @TCS_News. To stay up-to-date on TCS global news, follow @TCS_News. Asia Pacific Email: charlene.lee@tcs.com Phone: +65 9138 4370   Australia and New Zealand Email: Kelly.ryan@tcs.com Phone: +61 422 989 682   Benelux Email: Joost.galema@tcs.com Phone: +31 615 903387   Canada Email: tia.thomas@tcs.com Phone: +1 647 790 7602 Europe Email: mattias.afgeijerstam@tcs.com Phone: +46723989188   India Email: saxena.kritika@tcs.com Phone: +91 22 6778 9999 Email: vanshika.sood@tcs.com Phone: +91 22 67789098   Middle East & Africa Email: s.hasneen@tcs.com Phone: +00971567471988   Japan Email: douglas.foote@tcs.com Phone: +81 80 2115 0989   Latin America Email: martin.karich@tcs.com Phone: +569 6170 9013   Nordics Email: roland.bagen@tcs.com Phone: +46703178024   UK Email: peter.devery@tcs.com Phone: +44 20 3155 2421   USA Email: william.thomas@tcs.com Phone: +1 203 984 3978 TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS

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encouraging workers to save for their retirement. Since October 2012, employers have been able to automatically enroll their workers into workplace pensions. NEST has a public service obligation (PSO) to accept UK employers of any type or size. Speakers Helen Dean – Chief Executive Officer, NEST UK Key business milestones met by TCS' partnership with NEST are: The NEST scheme was launched in just 16 months from its contract award and 15 months ahead of the onset of the first group of employers needing to meet their new auto enrollment duties. NEST have registered a large volume of members in a short duration and is now one of the largest workplace pension schemes in the UK 1 million members in April 2014 2 million members in March 2015 3 million members in March 2016 In May 2016 NEST's 100,000th employer signed up to the scheme. In October 2016 NEST's 200,000th employer signed up to the scheme. Helen discusses NEST's requirements for a strategic transformation partner, one who could offer end to end services for administration services to include solution, IT infrastructure, IT operations, Finance & Accounting, Business Process Services, through to customer management. TCS' experience, scale, breadth of expertise and ability to deliver certainty proved to be an essential component for NEST in meeting its public service obligation (PSO). Helen adds, "We have a saying here that says they're more NEST than NEST. TCS people feel like they are delivering NEST for us - in fact they are NEST as far as our customers are concerned. They have a great relationship with us so we have a one on one relationship with individuals' right across the business here in the UK and in India." Helen shares an instance where TCS' suggestion for NEST to integrate Webchat in their systems led them to becoming UK's first pension provider to bring in Webchat. She says, "We'll continue to transform pensions and we'll continue working really hard in partnership to make sure that the NEST experience is the best possible experience that a member could have." TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height ======================

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foundation on which the next 10 years will be built.   TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Theme Font size Line height ======================

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prepared for the enterprise-wide migration. This involved a number of challenges and operational changes, but TCS' readiness in terms of understanding the business requirements and recommending best-fit solutions ensured a successful execution of the project. Jim says, "The true sign of a partner is where the first conversation is how do we fix it." He talks about TCS' contribution in helping EDF Energy maintain its leadership position in the market. Jim says, "TCS has preempted our plan and actually taken some risk in terms of preparing for any challenge that may arise... when we made a decision, we were able to move very quickly, helping us maintain the leadership we want in this area."   TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Theme Font size Line height ======================

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The enterprise and ecosystem, resilient together

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holistic approach with intelligent solutions from a range of ecosystem partners.   Through our strategic collaborations with leaders in enterprise applications, we maximize the ecosystem advantage for you.   01. Oracle Helping people see data in new ways, discover insights, and unlock endless possibilities. Read more. 02. Salesforce Transforming customer relationships and driving business growth with next-gen CRM. Read more. 03. SAP Bringing four decades of innovation to develop intelligent technologies and transform business processes. Read more. 04. ServiceNow Redefining business landscapes with enterprise-wide transformation. Read more. 05. Specialist partners Meeting the strategy needs of specific industries and functions. Our capabilities   Advisory and consulting Analytics and visualization Customer experience Digital field service management Digital performance management Enterprise integration Finance performance management Human capital management Sales performance management Strategy Supply chain management Transformation support With more than 200 offerings and proprietary innovations, we create intelligent, unique enterprise applications for your business. 01. TCS Enterprise Navigator™ TCS Enterprise Navigator is an integrated consulting framework with organizational change management abilities to help with business digital transformation. 02. TCS Crystallus™ on SAP With TCS Crystallus™ solutions, read how firms can embark on the digital transformation journey, enhance customer experience, and accelerate time-to-market. 03. TCS Crystallus™ on Oracle Cloud Derive faster time to market and enhance performance with TCS Crystallus on Oracle Cloud. Learn more about our pre-configured industry solutions. 04. TCS Crystallus™ on Salesforce Built on Salesforce Industries, TCS' solution helps enterprises adopt digital initiatives & specific innovations for enhanced performance & business agility. 05. TCS ConvertCore Read how TCS ConvertCore defines SAP S/4HANA conversion roadmap and helps enterprises embark on a digital transformation journey to drive business value Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA TDSG transforms core business and HR functions TCS Helps Henkel Implement a Digital Order Management System How Travelport transformed customer experience to drive sale Xerox transforms CX with Oracle Commerce Cloud TDSG transforms core business and HR functions   With us, you can build the ecosystem you need for success. Intelligent, automated, and agile applications. Best-of-breed solutions for faster ROI. Industry-leading advisory and business expertise. Deep industry, domain, and contextual knowledge. Rich expertise to transform application landscapes at scale.   Turn Customers into Advocates with Your Sustainability Initiatives Experience the TCS-Salesforce Partnership at Dreamforce 2024 TCS is a Premier Sponsor of Oracle CloudWorld 2024 TDSG transforms core business and HR functions Versuni becomes a digital-first company TCS Servitization Engine on Oracle Cloud 200+ proven solutions 100+ alliance partners Contextual knowledge TCS Co-innovation network™ TCS recognized as a Leader in Gartner® Magic Quadrant™ for Worldwide SAP S/4HANA Application Services TCS named a Leader in Next-Gen Salesforce Services by NelsonHall TCS lays the foundation for Versuni to become a digital-first, insights-led company Bombardier selects TCS as its key strategic IT partner Theme Font size Line height We can help you maximize the ecosystem advantage. =====================

Automate and accelerate your SAP S/4HANA journey to embrace digital success

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leverages the full spectrum of TCS' offerings and services, including advisory, consulting, organizational change management, and preconfigured industry solutions for a holistic conversion experience. Accelerate your conversion journey by up to 40% by leveraging automation, business reference suite, and industry-specific accelerators. With digital competition evolving at a rapid pace, enterprises are continuously innovating to keep up. Leaders are redefining their business models with a focus on customers, value proposition, capabilities, and finance. Across these areas, there is a constant need to innovate, differentiate in the marketplace, and stay ahead of competition. This kind of complex and purpose-led transformation is highly dependent on building a strong digital core. For organizations leveraging the next generation ERP capabilities through SAP S/4HANA, there are two prominent transformation paths: embark on a greenfield, which is a net-new path digital transformation journey leveraging SAP S/4HANA; or adopt the system conversion path to establish a digital core. For those embarking on a transformation journey, greenfield is a strong choice when ushering in a business model change or integrating disparate ERP systems that exist due to frequent mergers and acquisitions or divestitures. System conversion is a preferred path for enterprises with a large ERP landscape, global SAP footprint, and phased approach to business transformation. TCS ConvertCore defines an outcome-driven conversion roadmap to SAP S/4HANA that is predictable and modular. With the flexibility to choose from a simple or hybrid conversion, TCS ConvertCore offers a flexible approach that allows enterprises to drive incremental business value. TCS ConvertCore offers a range of capabilities, including modules like the ConvertCore Conversion Assessment, which builds business cases for customers to evaluate ERP conversion impact and determine prerequisites which helps in faster value definition. It also offers the ConvertCore Composite Conversion, a foundational core that includes automation-enabled conversion, business risk management, predictability, and a conversion reference suite. Going beyond conversion, modular add-ons offer value drivers such as cloud adoption, user experience enhancement, process simplification, and functionality improvement. An infographic on TCS ConvertCore presenting a systems conversion approach to business transformation, especially for those enterprises with a large ERP landscape and global SAP footprint. TCS ConvertCore defines an outcome-driven conversion roadmap to SAP S/4HANA that is predictable and modular. It offers a range of capabilities, including modules like the ConvertCore Conversion Assessment, which builds business cases for customers to evaluate ERP conversion impact and determine prerequisites which helps in faster value definition. It also offers the ConvertCore Composite Conversion, a foundational core that includes automation-enabled conversion, business risk management, predictability, and a conversion reference suite. Going beyond conversion, modular add-ons offer value drivers such as cloud adoption, user experience enhancement, process simplification, and functionality improvement. 01. TCS Crystallus™ on SAP With TCS Crystallus™ solutions, read how firms can embark on the digital transformation journey, enhance customer experience, and accelerate time-to-market. 02. TCS Crystallus™ on Salesforce Built on Salesforce Industries, TCS' solution helps enterprises adopt digital initiatives & specific innovations for enhanced performance & business agility. TCS ConvertCore leads to faster time to market by accelerating the conversion journey by up

to 40% by leveraging automation, business reference suite, and industry-specific accelerators. By embedding these industry-specific accelerators into a foundational base, ConvertCore creates a distinct competitive edge, scalability for future business needs, and facilitates continuous innovation. TCS ConvertCore provides flexibility to generate incremental business value with a phased approach to conversion, as well as the opportunity for future readiness with cloud adoption for stronger predictability and value from a conversion journey. TCS ConvertCore's modular and predictable enables frictionless migration without disrupting business as usual, even during complex ERP transformation. With a proven integrated consulting transformation framework, TCS ConvertCore leverages the full spectrum of TCS' offerings and services, including advisory, consulting, organizational change management, and preconfigured industry solutions to deliver a holistic conversion experience. Our partner ecosystem complements our core capabilities in specialized tools, an area where TCS has strategically cultivated strategic relationships to simplify conversions and build a scalable and flexible ERP core. To maximize the transformation value, TCS offers a composite conversion offering, giving customers the flexibility to choose from additional transformational objectives alongside conversion to generate incremental business value and opportunity for future readiness with cloud adoption. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height
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TCS Crystallus™ on Salesforce

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nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Gain business agility and accelerate digital transformation Accelerate transformation with TCS Crystallus™ on Salesforce You have these already downloaded We have sent you a copy of the report to your email again. As businesses go digital, there's been wider adoption of the cloud. The technology acts as a unifying fabric enabling faster digital transformation and enhanced customer experience. From modernization of outdated systems and applications to integration of new capabilities and building a robust digital core that enables business transformation in an agile manner, cloud is powering it all. However, many companies have yet to tap into the full potential of the cloud to drive innovation and technological evolution to meet increasing customer expectations. TCS is helping organizations accelerate their cloud-led transformation journeys and create exponential value with the power of TCS Crystallus™, a set of pre-configured industry solutions and composable business applications. An infographic that presents how organizations can accelerate their cloud transformation using TCS CrystallusTM on Salesforce, which is a set of pre-configured industry solutions and composable business applications. With TCS Crystallus, businesses can reimagine their core business through a scalable-agile-digital platform; differentiate themselves via readiness towards newer business models, revenue streams, and market adjacencies; and stay relevant and future-ready in the face of changing ecosystem dynamics. TCS Crystallus™ on Salesforce acts as a catalyst for enterprises' digital transformation and extends the capabilities of Salesforce solutions. It creates a roadmap for the future that ensures relevance in changing ecosystem dynamics. The solution drives faster, superior business outcomes across key industries: Communications: Accelerate transformation of business support systems (BSS) and develop readiness for newer business models and market adjacencies. Media, publishing, and information services: Attract, onboard, and retain subscribers, drive media planning, and streamline creative content management processes to accelerate global expansion initiatives. Banking, financial services, and insurance: Empower advisors, agents, and bankers to gain full insights into their clients to offer personalized product recommendations and services and drive business growth. Healthcare and life sciences: Drive patient outcomes, healthcare professional (HCP) engagements, improve the quality and affordability of care services, and help organizations adopt value-based care and direct-to-consumer business models. Energy and utilities: Create new revenue streams and move to a sustainable energy future with innovative business models such as energyasaservice (EaaS) and insight-driven, multi-industry offerings. Public sector: Enable federal, state, and local governments to rapidly digitize and

transform themselves, become more agile, improve internal efficiencies, and enhance citizen experiences through reimagined service delivery. Travel and logistics: Deliver frictionless customer experiences and seamless operational performance, streamlining maintenance, repair, and overhaul (MRO) operations through sustainable travel ecosystems and hyper-personalized journeys. Manufacturing and Automotive: Deliver "phygital" experiences that elevate the shopping experience for customers and empower customers and dealers with remote diagnostics through a cognitive, connected ecosystem. High Tech: Optimize renewals or run-rate business for committed revenues and empower dealers and distributors through B2B subscription commerce.. Elevate employee experience from hiring to retention and simplify selling and renewals to maximize profits with minimal renewal efforts. Retail and consumer goods: Elevate sales enablement, optimize routes to reach consumers, drive brand consistency, simplify retail planning and execution, and maximize customer lifetime value. TCS Crystallus™ helps enterprises derive greater value from their Salesforce investments. Enable faster business alignment with future state and purpose, and best-fit process maps. Accelerate time to market with pre-configured industry solutions, composable business applications and industry reference architecture built on Salesforce for faster enablement of newer business capabilities. Facilitate early onboarding of users with persona-based usage tracking dashboards and address crucial business challenges in user adoption at the initial stages. Enhance business agility to support business model changes for greater resilience and facilitate perpetual transformation to adapt to changing business needs. Minimize the impact of business disruptions on users and processes through a successful change management framework and ensure business continuity. When you work with us, you can make the most of our expertise and innovation ecosystems to gain a competitive edge. As a global leader in strategic Salesforce services and solutions, TCS brings our deep industry, business, and technology expertise to drive customer engagement and create hyper-personalized customer, partner, and employee experiences. Our award-winning solutions and extensive experience in Salesforce services ensure tangible results in our clients' digital transformation journeys, helping them tap new revenue streams at a faster pace. TCS' seasoned consultants blend the art and science of consulting with an integrated, proven framework to provide strategic insights, organizational change management, and design thinking to enable greater value and business outcomes. We tap into TCS' Pace Ports™ and Co-Innovation Network™—a collaborative network of research and academic institutions, alliance partners, startups, and venture capitalists—to innovate and create a competitive advantage for our clients. Stellantis enhances omnichannel CX Dupont Achieves Service Innovation with Salesforce Service Cloud TCS Named a Leader in Next-Gen Salesforce Services by NelsonHall TCS Wins Salesforce Innovation Award for Powering Equifax UK's Customer Experience Transformation We can help you maximize the ecosystem advantage. Theme Font size Line height
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TCS Crystallus™ on Oracle Cloud

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organization's digital transformation goals. Business insights elude them, and their systems struggle when integrated with advanced technologies such as automation, AI, IoT, and analytics. Industry leaders want to double down on minimizing cloud transformation risks to realize tangible business benefits in time. Accelerate industry best practices and processes to reap business benefits TCS CrystallusTM on Oracle Cloud, a set of pre-configured industry and business solutions, helps enterprises accelerate time to market with advanced automation and analytics. With Oracle Cloud at its core, the solution enables an ecosystem operating model and simplifies the cloud transformation journey by automating processes, connecting disparate systems, and leveraging advanced technologies to facilitate data-driven decisions with actionable insights. The bespoke solution is built for the needs of tomorrow's industries: Banking, financial services and insurance: Fast Bank offering facilitates superior design, supporting audit reporting needs for IFRS, enabling an efficient reconciliation through ready-to-use structure for chart of accounts (COA) and chief financial officer (CFO) cockpit. Communications, media and technology: Print plus digital bundle offers a single order with fulfillment, provisioning subscription, orchestrating print and digital invoice. Oil and gas: An order fulfillment solution delivers manufactured products with billing and revenue recognition with a unique cost liquidation process. Public sector: The solution offers relevant financial structure, COA, tax reporting and budget control, project costing and contract billing with preconfigured scenarios specific to state and city. An infographic presenting TCS CrystallusTM on Oracle Cloud, a set of pre-configured industry and business solutions. It enables an ecosystem operating model and simplifies a firm's cloud transformation journey by automating processes, connecting disparate systems, and leveraging advanced technologies to facilitate data-driven decisions with actionable insights. The solution comprises a value management layer, where process mining, business benefit assessment and more are executed; an intelligent layer, where predictive and preventive maintenance, composite AI and deep learning, and more are carried out; an enablement layer, comprising of migration, test automation, AI-based quarterly updates, and more; and a digital core, which includes a reference repository, industry best practices, process maps, transformation enablers, and more. TCS Crystallus on Oracle Cloud can be adapted to suit the needs of various industries, including banking, financial services, insurance, communications, media and technology, oil and gas, and the public sector. Alleviate misstarts, risks, cost overruns, and accelerate early benefit realization. By utilizing TCS Crystallus on Oracle Cloud's proven framework, leaders can reduce time-to-market, gain agility and speed, minimize business disruptions, and reduce design cycles by up to 30%. The industry preconfigured solutions are calibrated to tackle specific industry challenges and help streamline business processes to drive continuous improvement and innovation. This combination leads to accelerated value realization through faster integration of complex ecosystems and seamless scalability to meet growing business needs with minimal impact on business as usual. As a global leader in strategic Oracle Cloud services and solutions, TCS brings unrivaled industry, business, and technology expertise to every transformation. TCS and Oracle have a long-standing strategic partnership helping clients across industries realize value from their cloud initiatives. Our extensive domain knowledge coupled with

powerful solutions like TCS Enterprise Navigator™, TCS' consulting-led transformation framework, helps build a future-ready digital foundation that allows leaders to adapt to changing market dynamics. TCS has a rich and diverse Co-Innovation Network™ comprised of research and academic institutes, alliance partners, industry bodies, startups, customers, and venture capitalists. We leverage this extensive network to co-create industry and business innovations aligned to c-suite expectations.   GKN Automotive enhances HR operations SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

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business solutions to accelerate enterprise digital transformation You have these already downloaded We have sent you a copy of the report to your email again. Leaders today understand that adopting innovative technologies and an efficient execution approach are key in a rapidly changing and competitive business environment. TCS Crystallus™ partner solutions on SAP are a set of preconfigured industry and business solutions designed to accelerate digital transformation. Our partner solutions on SAP enable enterprises to build a robust digital core, create new business models with minimal risks, and pave the way for exponential value. Unlock innovation with a robust digital core. Digital transformation is more than simply selecting the right technology. Today, businesses embarking on digital transformation journeys should focus on creating future-ready, intelligent, and sustainable processes. They need to build a strong digital core with technologies that will help them enhance customer responsiveness, accelerate time to market, ensure business differentiation, and build resilience across core finance, human resources (HR), manufacturing, and supply chain processes. Digital transformation programs are often encumbered by cost and time constraints, or concerns about business continuity, especially for organizations with diverse business operations. Enterprises that adopt SAP S/4HANA and intelligent technologies face inherent risks, system disruptions, and complex business process changes during the transformation.   Enhance customer experience, accelerate implementation time, and build resilience. TCS CrystallusTM partner solutions on SAP enable enterprises to rapidly realize value from their digital transformation initiatives with ready-to-use templates, configurations, and best practices. The solutions leverage intelligent in-built technologies and are tailored to industry and business processes. Powered by assets and accelerators that leverage SAP S/4HANA as their digital core, the solutions help kick-start enterprises' digital transformation. At the core, our preconfigured solutions provide validated configurations, templates, and white space solutions allowing businesses to rapidly deploy advanced technologies seamlessly. TCS' solutions help enterprises build innovative business models by enabling them to rapidly deploy best-fit technologies, while also mitigating the risks associated with digital transformation initiatives enterprise-wide. Our solutions are characterized by distinctive features: Our partner solutions can be adopted independently or can be used alongside other industry reference solutions and value assurance services. Innovate and grow with a scalable, flexible digital core. When integrated with SAP's digital core, our solutions offer faster implementation time by accelerating transformation journeys by up to 30%, gaining a significant lead-time advantage. The embedded industry and line of business-specific best practices eliminate risk while creating a digital core that is scalable to future business needs, and flexible to adapt to dynamic market demands. The solutions provide enterprises with a foundation for innovation with streamlined processes and access to real-time data for a comprehensive view of customer interactions and preferences. Enterprises can navigate the complexities of digital innovation with minimal business disruption, driving sustainable growth and competitive advantage in an increasingly digital landscape. TCS brings unparalleled industry experience, contextual knowledge, and extensive subject matter expertise with enterprise solutions that drive business value. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Reinvent HCM with TCS' HR

Transformation Services TCS' integrated consulting framework for perpetual innovation & growth GKN Automotive Unlocks Next-gen HR Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

Contact center transformation services

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deteriorating the customer experience and brand equity. TCS SOLUTION TCS' Contact Center Transformation Services help companies optimize customer center processes with smart automation, robust systems and workflows, and Salesforce call center implementation accelerators. They include: BENEFITS   SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. ======================

TCS services for SAP S/4HANA

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hindering responsiveness. SAP S/4HANA is designed to address these requirements, however, a lack of the right experience, expertise, and supporting assets is often a major challenge. TCS SOLUTION TCS Services for SAP S/4HANA enable you to migrate legacy business suites—ERP, supplier relationship management (SRM), and supply chain management (SCM)—to the latest SAP HANA platform. Our services address both brownfield and greenfield migrations and provide an intuitive, customizable, and user-friendly application interface. We help companies harness SAP S/4HANA to simplify their enterprise ERP environment in terms of data models, user experience, and business processes. With our structured migration methodology tailored to your enterprise's needs, you can ensure the success of your SAP S/4HANA implementation. We offer: SAP HANA proofs of concept (PoC) and product demos Migration recommendations and implementation services TCS SAP S/4HANA Transformer Suite With a 21,200-strong SAP practice consultants worldwide, TCS delivers real value to over 550 ongoing engagements. BENEFITS Increase customer satisfaction Improve business agility Drive innovation Reduce technology costs   SAP CENTER OF EXCELLENCE IN LATIN AMERICA TCS has expanded it presence in Latin America with a strong Center of Excellence (CoE) in SAP technologies with benchmark for best practices for implementations and more than 500 specialists. The CoE resides within and is closely integrated with the existing TCS CoE global landscape, which includes centers in Europe, US, Latin America and India focuses on providing thought leadership across the SAP Technology portfolio. TCS has a comprehensive, integrated full services portfolio around the SAP technology stack, across industries, business domains and geographies. Services include consulting, advisory, implementation, rollouts, upgrade, shared services, and hosting services. TCS helps enterprises evaluate SAP's newer digital offerings such as SAP S/4HANA, Hybris, SuccessFactors, Ariba, and more, and draw up their future architecture and strategy.   SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. =======================

Enterprise Navigator™

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our Newsroom TCS works hand in hand with world-leading investors. Challenge Solution Benefits Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Optimize digital investments with TCS-designed integrated consultancy framework Many enterprise digital transformations focus solely on adopting new technologies with minimal synchronization with their business goals. As a result, employees are unable to considerably reduce manual effort and single-mindedly pursue innovation and growth. This calls for an end-to-end transformation roadmap that helps CxOs rapidly initiate programs to improve customer experience and build models for continuous growth.   Designed to help organizations build a future-ready digital foundation that allows them to enhance innovation and easily adapt to changing market dynamics, TCS Enterprise Navigator is a consulting-led transformation framework that creates an intelligent enterprise with a range of capabilities. With smart capabilities such as strategic insights and value realization, organization change management, and preconfigured business and industry solutions, the framework supports emerging technologies, such as AI and advanced analytics, to drive innovation and growth. It also accelerates the time to market by 25-30% and ensures competitiveness by implementing a digital core and intelligent technologies with TCS Crystallus™. From ideation to execution, TCS Enterprise Navigator takes a holistic and measurable approach to modernize enterprise-wide processes. The framework enhances user experience and helps organizations prepare to sustain change amid disruption. With TCS Enterprise Navigator, enterprises across the world can experience the following benefits: SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. ===================== ----- Arcticle source ----- https://www.tcs.com/what-we-do/services/enterprise-solutions/solution/tcs-compass-enterprise-transformation-unlock-business-value ----- =====================

TCS Safe Workplace

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workforce model by evaluating various factors that ensure a stable workplace for employees. It includes a set of apps and a dashboard that supports collecting feedback and automates return to work processes, including contract tracing, shift management, and workspace planning. It helps minimize the complexities of redefining safety protocols to maintain social distancing. All this without disrupting business as usual during the transition. By leveraging an organization's existing data platform and policies, TCS Safe Workplace creates a command center based on a single source of truth. With it, you can seamlessly enable contact tracing, monitor your communication channels, and expedite grievance resolution management. By identifying zonal pandemic hot spots and enabling fact-based decision-making, organizations can proactively adapt their operations and mitigate unforeseen disruptions. Implement personalized health and safety measures for employees. TCS Safe Workplace enables enterprises to jumpstart return-to-work programs within four weeks and scale support to manage thousands of employees across various locations. Enterprises can use the solution to: Monitor and mass personalize health and safety indicators. Automate feedback processing and provide right responses. Leverage virtual agents to share health and safety information. Guide new hires during onboarding. Organize and track workspace usage during shifts. Gain visibility into sanitization status and highlight areas of risk. Manage pandemic-related cases and contact logs to help make data-driven decisions. Embrace the future of workplace safety with TCS TCS Safe Workplace delivers quicker value realization based on our ready repository of tools and accelerators. We continue to design new approaches for our workplace solutions with our dedicated centers of excellence by adopting continuous research and innovation. Leverage our proven expertise, experience, and winning partnerships to make return to work a cherished experience. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

HR transformation services

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countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Designing rewarding experiences for employees. Enterprises are under pressure to transform HR services to drive employee engagement and increase productivity. They need to design rewarding experiences, putting employees at the heart of every HR program. To be the workplace of the future, companies need to focus on employee well-being and safety; give people more choices on where and how to work; and create an environment of diversity, equality, inclusion, and belongingness (DEIB). Additionally, the rise of new employment models and the gig economy necessitates identifying resources such as contingent workers, freelancers, and part-time workers. HR teams can tap new channels to scout for these resources, create gig work developmental plans, and adopt HR processes for non-traditional employment models. Skills-driven talent intelligence can make a difference. It helps in nurturing careers, driving fulfillment strategy and mobility, and building transferable skills. It also drives AI-based sourcing for unbiased, effective talent fulfillment. Enterprises can also realize greater value through people insights by continuously tracking how well employees are engaged and productive to make decisions to nurture talent. It also helps build an analytics and insights foundation to measure the value realized by HR initiatives. Reinvent HR services to realize greater value from your workforce. TCS' HR Transformation Services enable enterprises to successfully change and improve the way HR services are delivered. Our deep business and technology expertise helps our clients unlock new value from talent to propel growth. Our services include: HR advisory: Helps simplify processes, align to business imperatives, establish benchmarks, create business cases, assess and adopt digital solutions, lower costs, improve HR service delivery, and elevate employee experience. HR service delivery: Spans optimizing organization design, deployment of employee experience layer, configuring onboarding and transition workflows, leveraging chatbots, and ongoing service delivery support. HCM technology transformation: Covers empathy-based design, system evaluation, integration, and testing to ensure your talent strategy is successfully realized. People analytics: Includes data consolidation, data hub and data lake creation, decision-making metrics, executive dashboards, and predictive and prescriptive insights. TCS' HR Transformation Services

leverages our deep business and technology expertise to help clients unlock new value from talent and propel growth. Ignite employee productivity, unlock people-centric experiences, and improve retention. TCS' HR Transformation Services delivers the following benefits: Increased employee productivity: Enhances workforce agility by transforming the way employees work. Improved retention: Helps retain critical talent across the organization and r employee turnover. Elevated employee experience: Enhances employee engagement with employee-centric HR transformation. Reduced HR costs: Brings down the costs incurred by the HR department through effective HR processes and policies. Increased HR efficiency and productivity: Drives exponential improvement across key HR metrics. Agile and future-ready organization: Cross-skill and upskill employees and build the future workforce. Modernize HR services to leverage talent as your competitive advantage. By partnering with TCS, businesses can leverage the following differentiators: Proven integration capabilities: Experience and expertise in platform integration across leading on-premises and cloud-based human capital management products and niche solutions. Accelerated time-to-value: Leverage TCS tools and accelerators for automated testing and data loading. Dedicated HCM center of excellence: Design and incubate new solutions and tools, and provide coaching to HR consultants on HCM trends and technologies. TCS' CoE acts as the backbone of all HCM-related transformation initiatives, providing niche consulting, thought leadership, and access to numerous artifacts, reusable assets, and best practices. Domain expertise: Make the most of our resources with technical acumen and rich experience in HCM across verticals and geographies. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height ===================== ----- Arcticle source ----- https://www.tcs.com/what-we-do/services/enterprise-solutions/solution/oracle-servitization-solution-subscription-cloud ----- =====================

Enterprise Navigator for RISE with SAP

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transformation enablers for an accelerated, quality-oriented, and risk-mitigated journey to the cloud. We leverage our unique, game-changing solutions, such as TCS Crystallus™ and ConvertCore, which are an integral part of our RISE with SAP approach, to accelerate business transformation. Pivot for success with TCS Enterprise Navigator for RISE with SAP. Here's what you stand to gain with TCS Enterprise Navigator for RISE with SAP: Leveraging preconfigured business and industry solutions on TCS Crystallus, you can accelerate time to market by up to 25-30% and gain a competitive edge by implementing a future-ready digital core and intelligent technologies. Using ConvertCore, you can accelerate business transformation journeys by up to 40% and gain the agility to adapt to changing market needs with minimal disruption to the business. An infographic presenting the TCS Enterprise Navigator for RISE with SAP, which is a consulting-led framework to cloud transformation. It leverages TCS Crystallus™ and ConvertCore, which helps enterprises accelerate time to market and adapt to changing market needs.   Rebuild your digital core and reinvent business processes with our SAP-led business transformation frameworks. Here are some of the TCS advantages and capabilities you can leverage when you work with us: Strategic consulting practice: Seasoned consultants blend the art of consulting and science with an integrated framework to provide strategic insights, organizational change management, and design thinking that enable greater value and business outcomes. Partnership and innovation-led approach: Our Co-Innovation Network™ (COINTM) is a rich and diverse collaborative network comprising research and academic institutions, alliance partners, industry bodies, start-ups, and venture capitalists. This extensive network brings industry innovations to life. Market-leading delivery excellence: TCS is recognized as a leader by Gartner and Everest for strategic business consulting services and delivery excellence. Industry-wide experience: TCS experts bring deep knowledge and an extensive set of strategic solutions—such as industry-specific templates and best practices, scenario process flows, solution blueprints, and Machine First Delivery Model™—to fulfill the varied requirements of different industries, enterprises, and customers.   TCS' integrated consulting framework for perpetual innovation & growth TCS Pace Port™ New York: Building a Culture of Research and Innovation TCS ConvertCore: Defining SAP S/4HANA Conversion Roadmap TCS Crystallus™ on SAP We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

Oracle Cloud infrastructure services

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business processes designed to maximize enterprise value realization with a focus on end-to-end transformation and harmonization. Set up a single interoperable solution comprising IaaS, PaaS, and SaaS Move to cloud with reduced risk leveraging our initial 'move and improve' approach Adopt cloud-native features, and move to a SaaS solution without disruption Migrate workloads to OCI and shift from capex to opex model Provide application and infrastructure support under a managed services model Improve productivity, availability, and security for Oracle Business Suite with OCI that scales with ease Gain flexibility to use based on business needs without losing compatibility and security End-to-end services to help businesses realize new value from cloud. Forward-thinking business models for continuous innovation and improvements Enhanced business performance with best practices and industry benchmarks Reduced time for integrating complex ecosystems, accelerating time to value Seamless scalability to meet business needs with minimal impact on users and processes TCS Servitization Engine on Oracle Cloud Accelerate your RISE with SAP Transformation Journey with TCS Reinvent HCM with TCS' HR Transformation Services TCS Safe Workplace Solution Creating Workplace of the Future We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

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Cargotec empowers technicians on-the-move

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Solution Benefits Improvements what made this happen Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Efficiency Faster TCS Enterprise Navigator™ TCS Crystallus™ on SAP TCS ConvertCore Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Limited inventory visibility, inefficient processes slowed down Cargotec's services period. Cargotec's mobile service technicians perform preventive maintenance and repairs on their cargo-moving equipment. The technicians used paper-based systems to service and track their field work at customers' locations in Sweden and remote parts of Finland. They were dependent on back office staff, whom they contacted by cell phone to receive work order requests, update customer records, and order parts. Their limited ability to locate the required parts and manage inventories affected their response times. They needed more efficient service orders and quick visibility into inventory data. TCS evaluated and analyzed various mobility solutions to maximize the utilization of existing Cargotec systems and processes, and minimize integration costs. To enable global process streamlining, we selected an SAP-based framework. Our solution seamlessly integrated Cargotec's existing back-end processes with SAP Mobile Platform (Sybase Unwired Platform) to overlay their data sources and enhance them with mobile-specific scenarios and interfaces. We facilitated data synchronization and offline usage, integration with Outlook and native devices, and printing capabilities. Cargotec realizes improved customer orientation, responsiveness, and satisfaction. Service technicians are now self-sufficient, empowered by accelerated order processes and reduced data-capture

errors. Near real-time inventory information has enabled quick sourcing and increased resource utilization, leading to value optimization. Less effort by support staff Faster turnaround time Using Mobile Business Objects, we obtained a common view of all their data sources, greatly reducing the complexity and cost of accessing each source. We enabled Cargotec's technicians to quickly access 45,000 records per user—up to 2 million synchronized records.They now have the ability to order parts, manage inventory, report time and costs, generate reports, and update customer records, using their laptops. We developed middleware objects and user interfaces to be platform-agnostic, supporting any future changes seamlessly. TCS' total commitment from analysis to execution was commendable. Pekka Mikkola 01. TCS Enterprise Navigator™ TCS Enterprise Navigator is an integrated consulting framework with organizational change management abilities to help with business digital transformation. 02. TCS Crystallus™ on SAP With TCS Crystallus™ solutions, read how firms can embark on the digital transformation journey, enhance customer experience, and accelerate time-to-market. 03. TCS ConvertCore Derive faster time to market and enhance performance with TCS Crystallus on Oracle Cloud. Learn more about our pre-configured industry solutions. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height
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Canon Europe's HR revolution in the cloud

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Enterprise Navigator™ TCS Crystallus™ on SAP TCS Crystallus™ on Oracle Cloud TCS Crystallus™ on Salesforce TCS ConvertCore Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS' Oracle Cloud HCM solution consolidates disparate systems, sets up single source of truth You have these already downloaded We have sent you a copy of the report to your email again. With operations spanning 28 countries, 19,000 employees and 19 languages, Canon Europe's legacy HR systems were proving to be a hindrance in employee management. Dependencies on HR were leading to process delays in executing tasks, which in turn translated into poor operational efficiency. For seamless and agile growth, the growing number of non-standard processes and operations had to be standardized and integrated. To gain total HR visibility, Canon Europe needed a single source of truth for HR data. Knowledge on industry standardized processes in the HR domain, Oracle Human Capital Management (HCM) cloud expertise, and inputs from business stakeholders enabled TCS to tailor an offering that met Canon Europe's precise business needs. As part of the HR transformation program, TCS defined new business processes to bring disparate HR systems on to a single consolidated platform, allowing optimum usage of Oracle HCM cloud. Canon Europe's HR landscape was simplified, consolidated, and seamlessly integrated with downstream applications. In-house tools automated data migration to the cloud, establishing a single source of truth for HR data; approvals and notifications were automated to minimize process delays; and self-service was enabled for managers and other employees, including single sign-on for internal users and role-based secured access. TCS ensured that all processes and delivered solutions were GDPR compliant. The entire HCM cloud adoption journey, with zero customization, was executed in six months using SAFe agile methodology to ensure right prioritization of business value. Canon Europe's cloud-enabled HR transformation delivers business value, seamlessly TCS helped Canon Europe automate and standardize HR approval workflows across 28 countries. With minimized process delays and faster decision making, the company: TCS demonstrated thorough knowledge and expertise. Great team with top professionals to work with. Rik Veldeman 01. TCS Enterprise Navigator™ TCS Enterprise Navigator is an integrated consulting framework with organizational change

management abilities to help with business digital transformation. 02. TCS Crystallus™ on SAP With TCS Crystallus™ solutions, read how firms can embark on the digital transformation journey, enhance customer experience, and accelerate time-to-market. 03. TCS Crystallus™ on Oracle Cloud Derive faster time to market and enhance performance with TCS Crystallus on Oracle Cloud. Learn more about our pre-configured industry solutions. 04. TCS Crystallus™ on Salesforce Built on Salesforce Industries, TCS' solution helps enterprises adopt digital initiatives & specific innovations for enhanced performance & business agility. 05. TCS ConvertCore Read how TCS ConvertCore defines SAP S/4HANA conversion roadmap and helps enterprises embark on a digital transformation journey to drive business value SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Reinvent HCM with TCS' HR Transformation Services TCS' integrated consulting framework for perpetual innovation & growth GKN Automotive Unlocks Next-gen HR Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

EPCI major black cat transforms Its business

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We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study TCS enables 100% visibility into spending and cash flow with a cloud-based solution You have these already downloaded We have sent you a copy of the report to your email again.   Black Cat Engineering & Construction (BCEC) is Qatar's largest EPCI and maintenance contractor for the oil and gas industry. To effectively manage its huge volume of operations, the company needed a modernized, cloud-based ecosystem. The existing landscape was replete with fragmentation, making it difficult for business stakeholders to collaborate and track complex projects. Manual work added to data redundancy and limited holistic visibility of financial reporting. BCEC needed a centralized system for business process management and automated approval workflow, making it more agile.   TCS initiated a greenfield implementation for the construction company, establishing EPCI industry-standard business processes. Based on Business 4.0™ pillars, TCS implemented a multi-functional solution built on Oracle cloud services. TCS also co-developed an automated, project-based procurement process tailored for the EPCI industry. By leveraging the entire suite of Oracle cloud products for the EPCI industry (including components such as Oracle Procurement Cloud, Oracle ERPM Cloud, and Oracle HCM Cloud), TCS successfully facilitated a 360-degree transformation of BCEC's business process landscape: We are delighted to partner with TCS on this 360° transformation journey   TCS' cloud-based solution will help BCEC improve vendor selection and enhance the entire procurement pipeline. By automating repetitive tasks, BCEC can now lower costs per invoice, shrink delivery cycle times, and augment reporting capabilities. Faster project planning Visibility into cash flow Revenue report accuracy vs 75% earlier Digitalization of analytics SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

Vodafone UK reimagines field workforce management

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through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Vodafone UK sought to address field force concerns and process inefficiencies TCS leads digital transformation of field force services at Vodafone UK with Oracle Cloud Vodafone UK and TCS ensure increased workforce productivity and a happier customer base Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study TCS helps transform customer experience with Oracle Field Service Cloud You have these already downloaded We have sent you a copy of the report to your email again.   Dispatching field workers to multiple remote locations daily was a complex task that had to balance cost, efficiency and high levels of customer satisfaction. Vodafone UK wanted to modernize its field force management solution to meet these needs. The existing solution could not scale, generate insights on workforce utilization, effectively schedule tasks or update field workers in real-time. – All this resulted in high maintenance costs, long hours spent in the back office manually updating tasks and outputs, and above all, inconsistent customer experience.   To empower its workforce and deliver a superior customer experience, Vodafone UK wanted to embark on a digital transformation journey. Vodafone teamed up with TCS to build an intelligent, real-time solution for their field force. Drawing on proven user-centric design capabilities, TCS collaborated with Vodafone to gather requirements, map out a clear set of customer user journeys and KPIs, and deliver the new solution within a short period. TCS helped Vodafone adopt Oracle Field Service Cloud, supplemented by Visual Builder and Analytics Cloud. Configured for Vodafone's needs, the cloud-based services drew on artificial intelligence, cognitive, and machine learning capabilities to deliver time-based, self-learning, and predictive field force applications. These included accurate and actionable insights, and real-time views of the field to facilitate automated scheduling and synchronization of work tasks. The solution enhanced workforce efficiency and customer experience through web and mobile-based communications to deliver real-time messaging and updates.   "As ever, TCS proved to be a

perfect partner, helping us fully understand workforce and customer requirements and map out a solution that has transformed the way we work," Robert Fisher, Senior Manager CRM Domain, Vodafone   With Field Workforce Program, TCS delivered an Oracle Cloud solution that improved resource utilization, increased automation, and reduced costs at Vodafone UK. This led to superior user experience and adoption of solution by other Vodafone UK units. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

TCS drives GHCL's digital transformation journey

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believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study TCS navigates SAP S/4HANA conversion with consulting-led business process transformation You have these already downloaded We have sent you a copy of the report to your email again. Gujarat Heavy Chemicals Limited (GHCL) Limited, a large chemical manufacturing company was using SAP ERP Central Component for more than a decade, with semi-manual processes for some of its business functions. GHCL wanted to accelerate growth and modernize its enterprise IT landscape to stay competitive in the evolving digital business world. The company wanted to invest in a futuristic and scalable digital platform to initiate enterprise transformation. It wanted to enable this transformation through process digitization, analytics, automation, and cloud product suites with seamless integration across its landscape.   To convert GHCL's aging SAP systems while minimizing the risk and ensuring zero disruption of existing business processes, TCS proposed a brownfield approach for SAP S/4HANA adoption, leveraging TCS' SAP S/4HANA Conversion Factory and advisory-led business process transformation. TCS evaluated GHCL's key drivers, processes and landscape during an initial assessment and proposed a phased roadmap to begin SAP S/4HANA-led transformation. In the first phase, TCS recommended a single-step SAP S/4HANA conversion, optimizing system performance and laying a foundation for subsequent phase of process improvement. In the second phase, TCS transformed GHCL's core business processes using the latest business solutions from SAP S/4HANA - Embedded Transportation Management and Embedded Business Planning. With analytics on a mobility platform, GHCL users were able to get business information on-the-go through SAP Fiori applications. We are delighted by the delivery excellence and perseverance demonstrated by TCS team during project execution so far   Thanks to TCS' SAP S/4HANA Conversion Factory, GHCL significantly improved system performance and user experience, and laid the foundation to transform inherent processes. Performance improvement for 20 business-critical reports Improvement in average system response time Reduction in system backup time Reduction in database footprint SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

Globe Telecom standardizes processes using S/4HANA

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decision making with real-time insights, while enhancing user experience. Our proprietary transformation delivery methodology, proven tools for impact assessment, and accelerators that functioned throughout the engagement, ensured faster time-to-market and business continuity. We also ensured a smooth, accident-free delivery and excellent post go-live support.

  With SAP S/4HANA, the telecommunications major was able to boost system performance, which enabled faster and accurate financial transactions and closing of books. It was also able to significantly improve management reporting. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

GOSI modernizes business processes

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believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study End-to-end process automation and standardization enables future-readiness You have these already downloaded We have sent you a copy of the report to your email again. Non-standardized processes coupled with an incoherent system was negatively impacting General Organization for Social Insurance's (GOSI's) operations. There were severe cases of data isolation, redundancy, inconsistency, and inaccuracy. As a result, the monthly and yearly report generation was slow and often required manual intervention, which led to delays in statutory reporting and audit compliance. There was a lack of reconciliation between core insurance and finance resulting in data mismatch between back-end systems. Decision-making was further impacted by slow budget forecasting. By leveraging Oracle Fusion Applications with other components such as Oracle EBS R12, Webcenter, Hyperion Suite, Oracle Business Intelligence, and Oracle Data Integrator, TCS re-engineered GOSI's business process for standardization and risk mitigation. TCS went through all HR policies and mapped them onto Oracle Fusion ERP while extending IFRS standards compliance to social insurance downstream applications. We also delivered PaaS solutions with fusion application to address requirements of extended HR processes with seamless login. Disaster recovery and single-sign-on (SSO) options ensured secure restoration of applications and databases, and automated procure-to-pay cycle and event-based accounting smoothened the process workflows. We leveraged Hyperion planning and budgeting system to reduce cycle time and unified data models for real-time reporting with Oracle Business Intelligence Application. TCS installed all the applications on the Oracle Engineered System with high-availability configurations. Automated processes led to exceptional operational efficiency for GOSI. The ERP modernization resulted in the following benefits IFRS and statutory/regulatory compliance Digitalization of analytics and employee self-service for better insights SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

BT Builds Personalized Learning Platform

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leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. BT wanted to transform legacy learning management system to improve colleague experience SAP SuccessFactors learning management system helped improve learning experience BT employees now enjoy omnichannel learning experience with mobile enablement TCS Enterprise Navigator™ TCS Crystallus™ on SAP TCS Crystallus™ on Oracle Cloud TCS Crystallus™ on Salesforce TCS ConvertCore Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study Elevates colleague experience with SAP SuccessFactors learning management system You have these already downloaded We have sent you a copy of the report to your email again.   As part of learning transformation, BT wanted to improve colleague experience and create opportunities for learners to develop skills and capabilities. The legacy learning management systems were not scalable and unable to provide multi-channel learning. Lack of seamless integration with third-party applications, mobile access and social learning was impacting colleague experience and made employees feel remote and disengaged. Further, the fragmented systems and process variations across business units were leading to admin overheads and increased complexity in overall data control.   TCS helped the client deliver a comprehensive employee learning platform by leveraging TCS Crystallus™, a set of pre-configured industry and business solutions along with assets and accelerators. Delivered on the SAP SuccessFactors platform that covers more than 170,000 users across over 70 countries, the solution is built with human-centric design approach keeping colleague experience at its heart. The empathy-based solution captured experience touchpoints in the persona journey and elevated them by applying industry best practices. The solution leveraged TCS' hybrid agile methodology and show-tell-touch approach to accommodate dynamic business requirements. It helped to drive multi-channel learning across social platforms such as LinkedIn Learning with centralized reporting for data control.   TCS' standardized data formats

across all integrations ensured that the migration from legacy to the new platform had minimal impact on existing integrations. TCS' migration approach delivered more than 300 GB of learning content migration, some 15,000 courses, and over 3 million historical records using the Machine First Delivery Model (MFDM™). The solution provided on-the-go learning via mobile, self-learning, persona specific notifications reports, and other custom functionality that delivered modernized user experience and improved compliance.   "TCS' employee experience focused transformation approach helped us create personalized experience and improve learning efficiency of our colleagues," Ian Morgan, Senior Manager, Technical Solutions – HR & GBF, Digital, BT   The transformation of the learning management system has helped BT improve learning efficiency, allowing its employees to feel engaged and connected. The new platform delivered a smooth, personalized and colleague-first experience with omnichannel access across devices. BT has significantly improved the compliance and governance of mandatory learnings. The intuitive platform has been widely adopted and users have completed more than 300,000 trainings in just three months. 01. TCS Enterprise Navigator™ TCS Enterprise Navigator is an integrated consulting framework with organizational change management abilities to help with business digital transformation. 02. TCS Crystallus™ on SAP With TCS Crystallus™ solutions, read how firms can embark on the digital transformation journey, enhance customer experience, and accelerate time-to-market. 03. TCS Crystallus™ on Oracle Cloud Derive faster time to market and enhance performance with TCS Crystallus on Oracle Cloud. Learn more about our pre-configured industry solutions. 04. TCS Crystallus™ on Salesforce Built on Salesforce Industries, TCS' solution helps enterprises adopt digital initiatives & specific innovations for enhanced performance & business agility. 05. TCS ConvertCore Read how TCS ConvertCore defines SAP S/4HANA conversion roadmap and helps enterprises embark on a digital transformation journey to drive business value SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height
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Lexmark Accelerates Real-Time Insights

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Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Lexmark wanted to optimize and simplify business processes for improved decision-making. TCS migrates Lexmark's system to the SAP HANA platform in under six months. TCS Enterprise Navigator™ TCS Crystallus™ on SAP TCS Crystallus™ on Oracle Cloud TCS Crystallus™ on Salesforce TCS ConvertCore Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS helps implement the SAP HANA high-speed, in-memory platform to drive efficiency in operations. You have these already downloaded We have sent you a copy of the report to your email again.   Global technology leader, Lexmark International, has over 12,000 employees, serves clients in over 170 countries, and reports annual revenue of $3.6 Billion (2015). Lexmark wanted to leverage rapid and integrated data from across the enterprise to: Deliver essential financial reports to enterprise leaders in real-time Enhance user experiences with faster applications and data Reduce data storage while loading data faster By migrating to SAP HANA, Lexmark would be able to unify its business suite and retrieve data faster.
  TCS has had a successful engagement with Lexmark for over a decade. Building on this trust, Lexmark partnered with us to migrate its Enterprise Central Component (ECC) business suite's database from MS SQLServer to SAP HANA. Our team performed the technical migration, testing strategy, test planning, plan dual landscape, and go-live planning. To ensure a smooth transition, we executed comprehensive migration preparation activities, including checking the integrated third-party system's adaptability to SAP HANA, custom code analysis and remediation, and the set-up of a dual landscape. Lexmark's 'flash report' gives a daily, global view of its revenue.
  Our technical approach leveraged SAP's unified tool to upgrade to the latest ECC version and execute the database migration to SAP HANA. We then conducted intensive testing processes to ensure success. With a strong foundation laid, TCS and Lexmark are now moving forward with the implementation of SAP S/4HANA—SAP's latest innovative suite of enterprise applications. They are also considering SAP Fiori as a future enabler. Our team has thus helped create a roadmap for new opportunities along

Lexmark's digital transformation journey. 01. TCS Enterprise Navigator™ TCS Enterprise Navigator is an integrated consulting framework with organizational change management abilities to help with business digital transformation. 02. TCS Crystallus™ on SAP With TCS Crystallus™ solutions, read how firms can embark on the digital transformation journey, enhance customer experience, and accelerate time-to-market. 03. TCS Crystallus™ on Oracle Cloud Derive faster time to market and enhance performance with TCS Crystallus on Oracle Cloud. Learn more about our pre-configured industry solutions. 04. TCS Crystallus™ on Salesforce Built on Salesforce Industries, TCS' solution helps enterprises adopt digital initiatives & specific innovations for enhanced performance & business agility. 05. TCS ConvertCore Read how TCS ConvertCore defines SAP S/4HANA conversion roadmap and helps enterprises embark on a digital transformation journey to drive business value SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

TCS helps Mace set up Next-Gen Oracle support center

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innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study Aligning functional IT with business processes maximizes ROI of Oracle Fusion implementation. You have these already downloaded We have sent you a copy of the report to your email again.   Mace has been at the forefront of construction innovation for over three decades. Understanding its customers, supply-chain partners, and the larger environment it operates in plays a key role in its success. The company wanted to create a fully connected organization to enhance this understanding in a digital-first world. To achieve this objective, Mace implemented an 'Oracle Fusion in the Cloud' service center. However, given its global footprint, creating a digitally sophisticated service center that could help unlock the full potential of Oracle Fusion Applications proved more complex than anticipated.   Mace partnered with TCS to establish a next-gen Oracle Support Center (OSC). Going beyond traditional functional IT support, OSC was designed to facilitate transparency and strategic planning by bridging the gap between business process understanding, organizational vision, and technology requirements. OSC not only streamlined all the support processes, but also provided consulting, solutioning, and advisory services. A competency center was established as the nucleus of the OSC. It provided strategic advisory for reporting and enterprise resource planning (ERP) processes. This, in turn, enabled Mace to make more informed decisions related to Oracle Fusion implementation. Furthermore, business transaction services offered by OSC helped enhance efficiency for various transactional processes and empowered business users to focus on more value-driven tasks.   TCS' consultative expertise helped us focus on customer experience   TCS' competency center harmonized the Oracle Support Centre's IT process by effectively creating a collaborative and engaging platform for issue discussion and end-to-end resolution. Automation of key transactional processes enabled Mace to better manage expenses, reduce costs, boost its supplier relationship, and ensure contract, legal tax, and policy compliance. Reduction in efforts for transactional tasks Increase in business transaction efficiency for procurement business Enhancement in overall business user experience SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

Digital sales transformation for Olympus

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sales territory alignment process and optimize the enterprise territory management feature in Salesforce for Olympus to access information regarding products and pricing easily and generate accurate quotes. This led to a multi-year transformation of a dozen other programs that enabled greater productivity and efficiencies in sales, services, asset management, and compliance. TCS introduced global best practices to deliver multiple projects that reimagined both the customer and sales experience. To fully modernize the sales organization, TCS solutions leveraged a wide array of Salesforce tools. TCS also leveraged its collective knowledge about the industry, customer experience, and Salesforce to develop solutions that helped automate many processes, including the quote-to-order process. It simplified the pricing process, optimized invoice reconciliation, introduced a bar code scanning mobile app for improved accuracy, and managed products using configure, price, and quoting (CPQ) capabilities.   Delivering multiple projects that reimagined both the customer and sales experience   With TCS' solution, Olympus has reduced its sales cycle time from 40 to 8 hours and ensured 100% accuracy in quote generation. The grants and medical team successfully saved 1,500 hours annually with a first-of-its-kind CPQ solution for a non-sales process. Hours saved by Grants & Medical Affairs Team FDA compliance achieved Reduced efforts for sales reps Hours TAT, reduced from 5 days SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

Tata AutoComp Systems transforms ERP environment

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shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study Driving SAP S/4HANA brownfield implementation for 45 manufacturing plants worldwide. You have these already downloaded We have sent you a copy of the report to your email again.   The automotive components and aggregates manufacturer was running its critical business processes on SAP ERP Central Component (ECC), deployed 12 years ago. It also needed to replace aging hardware. The company consisted of 16 business units across India, China, U.S., Mexico and Sweden after a series of acquisitions. Tata AutoComp Systems wanted to deploy a cost-effective, robust digital platform for all its business units that would help them adapt to change quickly, drive process standardization, manage data effectively, and enable greater visibility and superior decision support.   TCS carried out in-depth due diligence to help the company map digital transformation opportunities with strategic business objectives. We spearheaded discussions with key stakeholders at Tata AutoComp Systems to narrow-down on the platform of choice for the ERP overhaul. The teams decided in favor of a single-step conversion to SAP S/4HANA and migration to TCS cloud infrastructure with a pay-per-use service model. Our team of SAP S/4HANA consultants leveraged their deep domain knowledge and industry-leading best practices, tools, and templates to execute SAP S/4HANA conversion for India and China business units and helped in going live on SAP S/4HANA. We met the client's aspirational timeline and the newly acquired businesses could be rolled on the SAP S/4HANA platform. By ensuring the conversion and migration is carried out in a single downtime window, we delivered exceptional business continuity. TCS used its proprietary industrialized model to provide flexibility for ramp-up and ramp-down. A team of experienced SAP and cloud consultants supported the client throughout the SAP S/4HANA transformation journey.   We see TCS as long-term strategic partner in our transformation journey   The cloud-based, next-generation ERP platform powered by SAP S/4HANA provided a robust foundation for the company to drive real-time analytics and end-to-end digital transformation, improving organizational efficiency and user experience. Reduction in data footprint Lower TCO with opex-based service model Improvement in turnaround time SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with

Tata Realty attains business synergy

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/enterprise-solutions/case-study/tata-group-business-harmonization-s4hana-merged-entity ----- Challenge Solution Sanjay Sharma, CFO, TATA Realty and Infrastructure Limited Benefits Statistics Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Tata Realty aimed to unify and digitalize real estate operations on a cloud platform. TCS enables smart real-estate management at Tata Realty for intelligent decision-making. Improved business efficiency, enhanced end-user experience and compliance at Tata Realty. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / case study TCS enables Tata Realty achieve business agility and harmonize processes with SAP S/4HANA. You have these already downloaded We have sent you a copy of the report to your email again.   Towards the strategic goal of bringing all Tata real estate operations under the aegis of Tata Realty, the company wanted to simplify operations and leverage synergies enabling growth with agility. Most of the processes were manual and disjointed,

hampering real-time integrated business operations, efficiency, user experience and innovation capability. Tata Realty realized the need for massive infrastructure and business operations overhaul to set a robust, scalable, and technology-driven digital platform and business solution as the foundation for an intelligent enterprise.   Drawing on deep industry knowledge, TCS crafted a strategic digital transformation roadmap evaluating Tata Realty's business objectives, key drivers and processes. Adopting a consulting-led approach, it designed a stable and scalable solution aligning Tata Realty's business KPIs and met strategic objective of unifying real estate operations under one roof. TCS enabled Tata Realty embrace SAP S/4HANA to modernize legacy systems with reimplementation of SAP RE-FX and SAP TRM. TCS integrated SAP applications with third-party CRM applications and online payment gateway for smooth integration of back-office and front-office operations. It harmonized 50+ processes across departments and enabled 30+ SAP Fiori applications to improve user experience. Tata Realty evaluated several cloud platforms and finalized Microsoft Azure with opex-driven cost model. TCS integrated key business functionalities into SAP S/4HANA to identify product white spaces and explore innovative solutions. Leveraging experience from past large-scale transformations, the program was executed through unique service delivery propositions. TCS enhanced business decision making by devising an intelligent real estate management solution leveraging automation. "The SAP S/4HANA transformation led by TCS was pivotal in building our core digital DNA."   Tata Realty has unlocked significant business value by accelerating better growth, productivity, agility and operational efficiency. The business processes are more streamlined, harmonized and integrated, enabling greater visibility into operations. Faster decision making Increase in user productivity and compliance Reduction in IT cost and manual efforts Reduction in payment receipt cycle time SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

British Telecom moves Its contact center to Cloud

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remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Enabling ease of doing business amidst rising customer expectations. Implementing digital, intelligent, self-service, cloud contact center. Redefining customer experience and service delivery. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / Case Study Cloud-based contact center platform strengthens omnichannel capabilities, transforms customer experience. You have these already downloaded We have sent you a copy of the report to your email again. In this era, where digital underscores every interaction, customers expect an intelligent, automated, agile, and cloud-based framework that is ready to serve customers on their preferred channel 24 / 7 / 365. British Telecom was keen to upgrade its IT infrastructure to address these rising expectations. To enhance its service appeal across its 30 million existing customers in 180 countries and new patrons, BT wanted to enhance its current contact center capabilities in line with 'ease to do business' benchmarks. It also wanted to reduce voice and chat volumes at its contact centers to reduce labor and infrastructure spends, without compromising on customer experience. TCS assessed British Telecom's contact center capabilities and identified the need to improve mobile responsiveness and simplify end-user design format for customers. TCS realized that an intelligent self-service module could significantly reduce service expenditures without impacting the quality of experience. Based on these requirements, TCS leveraged the Oracle service cloud solution, which provided BT with a single package delivering voice, video and messaging-based customer service, along with tools for recording and call/agent management. All of this was integrated, increasing convenience and usability. Aided by Oracle service cloud SMEs and agile principles, TCS accelerated implementation and the new contact center capabilities were made available in 14 weeks. This enabled BT to: "I am so pleased with what the team has achieved to make it into the technology news today, you should all be really proud of your contribution to the success. Many Thanks! It has been an incredible journey."   Leveraging TCS' transformation capabilities and adopting Oracle service cloud solution, BT was able to redefine its approach towards customer experience and

service delivery, reaching the high expectations set by Business 4.0 and digitalized interactions. The full suite of Oracle cloud customer services could be delivered via mobile, improving end-user flexibility. Rise in self-service volumes Reduction in clicks to create/monitor service requests Reduction in service requests SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =======================

Riyadh Cables gains business agility

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announcements. TCS guides adoption of SAP S/4HANA at Riyadh Cables with digital transformation advisory. You have these already downloaded We have sent you a copy of the report to your email again. For a company working in the cable industry, it is imperative to respond quickly to changing market demands and ensure business continuity. As Riyadh Cables embarked on its SAP S/4HANA-led business transformation journey, it realized the need for experienced advisory services and program governance. The company wanted an agile and industry-benchmark business solution that guaranteed the adoption of SAP platform with minimum customization to facilitate process standardization, simplification and automation. This was needed to address the challenge of fragmented business processes, including metal hedging, cable design system, and lack of insights in business KPIs. Recognizing that success of large-scale programs is paramount, Riyadh Cables engaged TCS as a digital transformation adviser to ensure faster and seamless implementation of SAP S/4HANA with program governance and ERP advisory. TCS deployed key strategies, such as iterative solution design, organizational change management (OCM), data migration, and third-party application integration for success of the program. Integration of metal hedging process with logistics and SAP S/4HANA with cable industry-centric application Advaris, enabled seamless business operations and visibility. TCS SAP S/4HANA transformation advisory service helped Riyadh Cables gain optimal value constraining the risks. TCS supported the client with its on-demand expertise, solution architects for gate reviews, and filled the workforce competency gaps with collaborative deployment model and training. Throughout the engagement, TCS managed risks, stakeholders, and suppliers. The three-way interactive approach adopted by TCS offered Riyadh Cables real-time clarity on solutions and reduced implementation time and cost drastically. TCS' quality assurance service enabled the client to embrace risk during the various phases of its digital transformation journey. TCS SAP S/4HANA transformation advisory service helped Riyadh Cables gain optimal value constraining the risks. TCS played a pivotal role in our SAP S/4HANA Transformation Initiative With assured success of SAP S/4HANA digital transformation, Riyadh Cables managed to streamline and integrate diverse business processes across applications and reduce overhead costs. This opened new avenues for business growth and standardization. TCS' SAP S/4HANA program governance and advisory services led to: SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height

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Zain redefines its sales functions

Challenge Solution Irfan Abdulgafor, General Manager Technology Core, Zain KSA Related reading Transformation starts here Find out more TCS is here to make a

difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Zain needed to upgrade its CRM to improve subscriber on-boarding and management. TCS adopted a 5D approach to transform and automate Zain's sales force capabilities. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS' services help the company shorten sales cycles and boosts deal closure rate. You have these already downloaded We have sent you a copy of the report to your email again.   Zain's existing Oracle-based CRM system was unstable and difficult to navigate. This created process bottlenecks when it came to onboarding new subscribers. With no scalable territory management feature in place, the system was unable to provide visibility into opportunities and the revenue pipeline. The sales team faced delays during deal closures or addressing missed opportunities due to the absence of an alert and escalation mechanism. The team was also dependent on a manual pricing system which increased closure cycle time.   At the outset of the engagement, TCS extensively studied the existing system landscape in close collaboration with Zain's stakeholders to identify root causes and prioritize issues. Post analysis, TCS deployed a new territory-based sales management function which simplified assignment delegation and revenue forecasting – reducing overall lead conversion turnaround time. By replacing the manual pricing system with an auto pricing feature, we enabled the telecom major's sales team to strengthen and streamline key account manager (KAM) assignment, reassignment, and escalation processes. TCS further rationalized and improved the CRM's user interface by removing field repetitions and redundant data entry points. Zain's CRM platform was augmented by integrating it with productivity enablers such as Google Maps, Outlook, and daily performance tracker, which in turn enhanced

overall operational efficiency.   TCS has played an instrumental role in improving our sales capabilities across geographies SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

GKN automotive enhances HR operations

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recruitment, and learning systems with the aim of optimizing and managing the company's workforce. TCS leverages Oracle HCM Cloud to deliver next-gen HR experiences at scale. TCS and GKN Automotive defined new business processes to bring disparate HR systems onto a single consolidated platform for an optimum usage of Oracle HCM cloud. TCS deployed the Oracle HCM cloud solution for core HR employee and manager self-service, and leveraged TCS Crystallus™ on Oracle Cloud, a pre-configured solution framework, for the design phase. GKN Automotive employees now have intuitive dashboards to view and manage relevant HR information and personal data. TCS further helped optimize the candidate and employee user experience, and HR operations with the uptake of latest features and unified reporting and analytics. A unified solution helps GKN Automotive nurture talent, personalize experience, and improve performance. TCS worked with GKN Automotive to create a one-stop global solution by integrating the HR landscape for core processes, recruitment, onboarding, learning, and reporting. TCS has supported our global HR transformation with the deployment of Oracle HCM cloud, helping deliver best-in-class systems and performance that create a great work environment which enables everyone to thrive. Fraser Kirk SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA TDSG Embarks on a Business Transformation Journey with TCS We can help you maximize the ecosystem advantage. =====================

Retail Major Transforms its Global Supply Chain

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news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Landmark needed to meet compliance deadlines and curb excessive procurement spends. Based out of Dubai, the Landmark Group is a multinational retail giant, with 2,300 stores in 22 countries and a number of partners/in-house brands. This created a highly complex sourcing and procurement landscape, leading to: ● Nearly 8 billion AED ($2.1+ million) spent on non-trade projects ● Lack of institutionalized capex control ● No centralized system for corporate projects management ● Limited time to achieve VAT compliance, without disrupting in-store operations The client realized procurement digitization was vital, and collaborated with TCS, recognizing our extensive knowledge of Oracle Cloud-based ERP. Taking a Machine First™ approach, TCS decided to automate key tasks across the sourcing-to-onboarding pipeline. A detailed blueprint was outlined, in collaboration with business stakeholders, finance managers, and divisional heads of Landmark's different group companies to understand the operational, technical, and legislative touch-points underlying its vision. This helped find pain-points and recommend standard procedures for non-trade project management. As a result of this analysis, TCS: ● Utilized Oracle Cloud ERP to transform the sourcing and procurement process ● Custom-configured the Oracle Cloud suite in-line with Landmark's unique requirements ● Leveraged TCS' PaaS capabilities to right-size the solution ● Helped adopt cloud-based financials with OCR support for automated invoice processing ● Automated the vendor onboarding process, removing manual errors ● Retrofitted Oracle eBS R12, retail management system and point of sales systems for VAT compliance Following agile methodologies, TCS was named as a 'Super Partner' by Landmark Group's CFO. Landmark successfully met VAT deadlines, reducing manual effort requirements by 50%. Landmark achieved end-to-end digitization for corporate project management and gained wide recognition for its VAT implementation approach. The new Oracle-based system enhanced visibility, reducing costs and enabling smarter vendor negotiations. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA TDSG Embarks on a Business Transformation Journey with TCS We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

Belgian railway group revamps its talent management processes

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business objectives. Ensure accurate translation of communication to employees across the globe. Improve employee performance by tracking continuous development and feedback. NMBS knew it had to optimize its recruitment and internal performance processes and resolve the challenges arising from its legacy systems.   TCS worked with NMBS and Ypto SAP HR team to develop an SAP SuccessFactors-based solution. This entailed: Implementing recruiting management (RCM) and recruiting marketing (RMK) solutions, which helped NMBS streamline the processes of sourcing, engaging, and hiring top talent. Enabling new functionalities such as "Quick Apply" and "Job Alert." These help candidates fill out the application form using minimal data. Deploying an advanced analytics tool that helped the client to view visitor data. Implementing the SAP SuccessFactors Performance and Goal Management solution. This enabled the job profile builder feature to monitor the progress and development of skills. It also helps bridge any skills gap and provides a transparent, integrated, and organized performance process for all users. Enabling an automatic rating calculation based on pre-defined complex rules and guidelines to reduce manual error. Automating performance processes and ensuring a seamless employee experience through real-time reporting and dashboards. Delivered in three languages—Dutch, French, and English—the solution seamlessly aligned with the functionality requirements of the existing performance management goals management processes.   The National Railway Company of Belgium (NMBS) wanted to improve the candidate experience by streamlining recruitment, and performance-related activities.   Attracting and managing top talent with optimized recruitment and performance appraisal processes. NMBS chose TCS to help develop talent and nurture employee growth by enhancing the capabilities of its existing recruiting and talent management processes. TCS and Ypto worked together to centralize and optimize the recruitment process. We helped the client to automate scheduling interviews and enabled applicants to track their status and receive notifications during various stages of the hiring process. Key benefits: Improved candidate experience and strengthened NMBS' position in the market as a preferred employer. Created a database of 25,000 candidates to help recruiters scout for the right talent. Enabled advanced analytics to provide a holistic view of the hiring journey from the first screening to actual hiring. Improved insights into performance and goal management processes for managers with a centralized view.   TCS Enterprise Navigator to accelerate digital transformation journey Learning Experience Platform: How BT Enhanced People Engagement TCS Crystallus™ on SAP Bekaert digitalizes its global HR operations We can help you maximize the ecosystem advantage. Theme Font size Line height
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Xerox transforms customer experience with Oracle Commerce Cloud

Highlights In this article Challenge Solution Benefits What the client says Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. Xerox wanted to offer its authorized service partners (ASPs) for ordering parts a personalized, best-in-class e-commerce experience. Lack of automation in its legacy platform resulted in significant inefficiencies, such as increased order cycle and stock availability issues, impacting the overall customer experience. It became imperative for Xerox to enhance the customer experience for its authorized service partners with a single platform to search, order, and track parts, complete with price visibility and discounts. Together with TCS, Xerox built an intuitive, modern cloud e-commerce portal to help authorized service partners order parts easily. Building an intelligent, real-time commerce solution to transform the buying experience for partners. Xerox wanted to embark on a digital transformation journey to provide superior customer experiences. To

achieve this, the company wanted a unified and organization-wide self-service e-commerce platform for its ASPs that would enable them to order parts easily. TCS successfully partnered with the Xerox architecture and delivery teams to implement the Oracle Commerce Cloud platform's order capture capabilities in a timely manner, helping the company to meet its business objectives. Some of the key features of the platform are: Guided search capability with visibility into related or substitute parts. It uses Oracle Commerce Cloud and the Oracle CPQ Cloud technology stack and is integrated with the company's ERP application. Real-time pricing and inventory availability, along with partner discounts and various payment options. Timely notification of order status and fulfillment. End-to-end self-service capability to perform actions without the intervention of service agents. Transforming partners' parts ordering experience with a modern cloud platform. With a fully integrated, single sign-on self-service platform for ordering parts, Xerox could realize the following advantages: Reduction in order placement calls Increased customer experience and satisfaction Easy navigation with guided search capability ensuring relevant search results Real-time order tracking TCS provided Xerox valuable support to enable a simplified, seamlessly integrated self-service commerce experience for our partners, opening the door for other opportunities to leverage the Oracle Commerce Cloud platform. Cynthia Davis-Jones SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA TDSG Embarks on a Business Transformation Journey with TCS We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

Travelport transforms customer experience to drive sales

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management – We automated sales performance management, integrating sales target data and transactional data from multiple sources to calculate incentives accurately and process payouts on time.   Enriching the employee experience and empowering them to drive business growth Leveraging the solution, Travelport has been able to enrich its employee experience, run its sales operations seamlessly, and target the right leads. Key benefits include: An amazing value-add to the sales agencies, this project has enabled Travelport to be a world-class sales organization. TCS helped our Travelport+ vision come to fruition. Heather Milam TCS ConvertCore: Defining SAP S/4HANA Conversion Roadmap TCS Crystallus™ on SAP TCS Servitization Engine on Oracle Cloud Accelerate Your Cloud Adoption Journey with TCS OCI Services We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

TDSG transforms core business and HR functions

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reports, and company announcements. India's first lithium-ion battery manufacturer partnered with TCS in its digitization journey. You have these already downloaded We have sent you a copy of the report to your email again. Addressing the need to digitize core business functions. TDSG, or TDS Lithium-Ion Battery Gujarat Private Limited, is India's first lithium battery maker and supplier. As a joint venture between TOSHIBA Corporation, DENSO Corporation, and Suzuki Motor Corporation, it had a unique set of challenges. It needed to maintain data integrity between the three companies, while enhancing core business operations from supply chain to finance. Addressing compliance issues, building a sustainable business, and fostering a fulfilling working environment for its employees were also top priorities for the company. TDSG realized that tapping the digital advantage by adopting an integrated, digital, and scalable enterprise resource planning platform was the way forward. This was critical to: Improve cash management processes and ensure on-time availability of funds for financial requirements and payment obligations. Enhance key logistics processes and expedite time to market for products. Integrate finance and logistics processes to increase productivity and time to market. Additionally, TDSG wanted to deploy an integrated HR platform to: Automate and streamline performance and learning processes as the existing processes were manual, disintegrated, and lacked transparency. Drive better decision making with key data insights.   Building a future-ready digital core and empowering the workforce. TCS defined an incremental transformation journey for TDSG through a holistic approach that focused on building a strong digital core, transforming key HR processes, and driving automation across different business areas. We started with a clean slate, implementing an entirely new IT landscape leveraging SAP S/4HANA to help TDSG optimize their supply chain process to gain a 360-degree view of the inventory, and integrate the procurement, logistics, and finance processes. Throughout, the focus was on ensuring efficiency and creating a foundation fit for the future. For TDSG's HR transformation program, we adopted an interactive, human-centric approach to elevating the employee experience, enhancing organizational agility, and encouraging employee collaboration. We transformed TDSG's core HR, learning, and performance management processes using the latest innovations in SAP SuccessFactors. We leveraged TCS' Crystallus™ to build a centralized, integrated core HR platform that served as the single source of truth for all users with HR data needs. Further, with 25 SAP Fiori-based applications for different business areas—all seamlessly integrated with the SAP enterprise system—we enabled secure anytime, anywhere access to business processes for employees, while helping meet specific business needs.   Driving operational excellence and sustainable economic development. Working with TCS, TDSG was able to continuously improve its business processes, reinforce rigor in its operations, and build a more sustainable business. Over a three-year period, TDSG could create value from its strategic investments in technology innovations. Key benefits: Decreased manual intervention by 80% through intelligent automation in supply chain and finance. Reduced man hours significantly by integrating a bank API-based payment facility that allowed automated reconciliation. Enabled real-time insights for preventive maintenance, ensuring seamless procurement and ready availability of spares. Simplified all plant maintenance activities using SAP Fiori mobility applications. Enabled early

identification of defects with 100% defective cell traceability; drove 100% compliance to hazardous waste disposal norms under ISO 14001. Streamlined HR processes; reduced existing HR operational processes by 20%. Enabled an efficient review process through an optimized performance and goal management system. Facilitated employee learning using a homogenous learning management system across divisions. Boosted data confidentiality and privacy across divisions by implementing SAP SuccessFactors.   TDSG has created value from its strategic investments in technology and innovation by integrating core business functions into a digital future-ready processes, strengthening our commitment towards sustainable socio-economic development. As a business transformation partner, TCS was instrumental in shaping and accelerating our business transformation journey leveraging TCS Crystallus™ and domain capabilities. A holistic transformation approach along with TCS' contextual knowledge and expertise in SAP S/4HANA and SAP SuccessFactors have enabled TDSG to achieve scalability, resilience, and operational excellence. Chirag Patel The journey of transformation of various functions at TDSG was partnered with TCS. We look forward to a more proactive and enjoyable journey ahead. Sankalp Shakunt TCS Recognized as a Leader in Gartner® Magic Quadrant™ for Worldwide SAP S/4HANA Application Services GHCL achieves SAP S/4HANA conversion with TCS Tata AutoComp Systems accelerates digital transformation with SAP S/4HANA TCS Positioned as a Leader in IDC MarketScape for Supply Chain SAP Ecosystems Services We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

Lexmark transforms its digital core with SAP S/4HANA

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extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. The company enhanced the user experience by migrating legacy ERP systems to cloud-based SAP S/4HANA You have these already downloaded We have sent you a copy of the report to your email again. Lexmark wanted to modernize its ERP systems to fuel innovation and enrich the user experience. A global leader in cloud-enabled imaging and IoT technologies, Lexmark is focused on continuous innovation to deliver an exceptional user experience. To meet its goals, Lexmark needed to streamline its existing business processes that were complex and time-consuming. The company wanted to modernize its legacy enterprise resource planning (ERP) systems that were creating a large technology debt, slowing processes, and impacting the user experience. In doing so, it hoped to enhance its international trade capabilities and rationalize infrastructure and licensing costs. Lexmark turned to its long-standing partner TCS for this ERP transformation.   TCS helped Lexmark migrate to SAP S/4HANA with minimal disruption to the business and in record time. TCS created a robust migration plan to enable an in-place conversion from Lexmark's on-premise legacy SAP ERP systems to cloud-based S/4HANA. The solution we provided leveraged applications already built into the legacy systems, making the migration a natural progression for Lexmark.   We drew on our deep contextual knowledge of Lexmark's IT architecture and our proven iterative delivery methodology perfected over numerous S/4 implementations to provide a fit-for-purpose solution. Our agile implementation of SAP S/4HANA allowed for continuous solution validation and iterative design. It gave Lexmark the option to assess more than 2,000 Fiori apps—all of which were supported by the new system—to choose those best-suited for its business. Meanwhile, the iterative approach allowed us to quickly innovate and refine the systems to meet Lexmark's needs, even as it enabled the company to visualize the value from the investment. TCS and Lexmark worked as one team to ensure a seamless migration. We completed the migration in record time—over a weekend—with minimal disruption to the business.   Lexmark elevates its intensely customer-focused value proposition with an enhanced user experience and operational efficiencies. With a robust digital core powered by SAP S/4HANA and future-ready systems, Lexmark could now focus on continuous innovation to deliver on its promise to customers. Some of the key benefits for Lexmark from the engagement are: Higher efficiency in daily material requirements planning Faster receipt processing for accounts payable specialists Greater

effectiveness in collections processing With this latest SAP S/4HANA project, TCS once again brought its technical leadership to successfully complete a hugely complex conversion and financial migration—on time and on budget. With this new foundation now in place, Lexmark can continue the next phase of our SAP modernization roadmap to deliver continuous innovations. Yves Gautier Lexmark Selects TCS to Transform its Digital Core to Deliver Faster Time to Market TCS and SAP: Acing Digital Transformation for Growth and Success Xerox transforms customer experience with Oracle Commerce Cloud How Versuni transformed into a digital-first company We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

Croma elevates customer experience with Service Cloud

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Salesforce transformation for Croma, empowering its customer care agents with the data they needed to enhance services. You have these already downloaded We have sent you a copy of the report to your email again. Croma wanted to elevate customer interactions by making consolidated customer information readily available to customer care agents. Croma is one of India's leading consumer durables and electronics retailers, helping people discover appliances that make a difference in their daily lives. While its customer base had expanded over the years, Croma's contact center and store agents did not have consolidated customer information readily available. The lack of relevant knowledge about customers and the appliances they had purchased via the company meant that agents struggled to provide personalized services. For information such as transaction orders, warranty information, and gift vouchers, the agents needed to: The company's legacy CRM system prevented it from enabling self-service options and offering customers the digital, social, and mobile experiences they have come to expect from brands they use in their daily lives. Croma knew it needed to embrace new technology and automation to elevate its customer service. TCS transformed Croma's post-sales customer experience using a cloud-based digital platform. TCS helped Croma roll out a cloud-based customer service management platform on Salesforce Service Cloud. Launched in three locations simultaneously, the solution was made available to 125 call center agents and deployed in more than 550 stores. The platform supported several new features and functions that enhanced both the user and customer experience. With the cloud-based customer service management solution, TCS enabled the following for Croma: Croma's customer service staff, both online and in-store, now have ready access to the data needed to have smart and intelligent interactions with customers. Today, they are better equipped to deliver on Croma's promise of sound advice and lifetime assurance on electronics purchased from them. The customer service management transformation with the Salesforce platform enabled Croma to boost customer satisfaction, retention, and brand reputation. It reduced complaints and escalations with quick redressal of customer concerns. Croma could: Case creation and resolution, helping improve customer retention Reporting for each call. This was made easier with the new cloud-based platform TCS Crystallus on Salesforce Generative AI in HR: Revitalizing the 3Ps of Employee Experience TCS AI for Business Study Key Findings TDSG Embarks on a Business Transformation Journey with TCS We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

ENGIE elevates its billing process with SAP S/4HANA®

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than 10 years, TCS brought the required and unparalleled contextual knowledge to the engagement. We understood ENGIE's need for a robust digital core that could help drive innovation and business growth. We also understood the importance of a simpler system with quicker turnaround time for changes to adapt to innovative and newer technologies. TCS enabled the global energy player's migration to a new SAP S/4HANA Utilities-powered system for billing and customer service with no disruption to the business. Our contextual knowledge was key to carving out the new entity and taking the right dataset to the upgraded system. We migrated a 14-terabyte (TB) Oracle production database, more than 25 billion data records, and about 56 inbound and 42 outbound flows. TCS used a partner-provided tool to migrate ENGIE's large commercial customers' data from the legacy environment to the new SAP S/4HANA Utilities one. This strategic move helped streamline processes and operations for both ENGIE and its large commercial customers. We also simplified the customer data model, enabling faster data processing and more accurate financial reporting.   By fully integrating the new SAP S/4HANA solution with the company's existing IT landscape, we enabled the following quickly and efficiently: With the Fiori apps, TCS enabled a contemporary design for the new billing and care solution, prioritizing ease of use and responsiveness. This resulted in a highly intuitive and personalized user experience for ENGIE's business users. What's more, we ensured that the entire migration was completed within the committed timeline of 48 hours with zero critical post go-live defects.   ENGIE elevated user experience and set the stage for future innovations. The SAP S/4HANA implementations resulted in numerous benefits for ENGIE—from real-time data exchange and a simplified user journey to improved performance for online transactions and faster processing of invoices. The multinational utilities company was able to improve user satisfaction and enhance operational efficiency significantly. The new cloud-based SAP S/4HANA system simplified the management and administration of the IT landscape. Today, it serves as a robust digital core for business process simplification and innovation. ENGIE has now got a system that is future-ready and more adaptable. Tangible impact: TCS has been a valuable partner in our SAP transformation journey. Their deep technical knowledge, domain expertise, and contextual acumen helped us switch from SAP IS-U to S/4HANA to reimagine our invoicing modules. Without any disruption to business, we could power up and run the new system, achieving the desired business outcomes. Jerome Horvilleur SAP S/4HANA Services: Data Migration & Enterprise Management Solution | TCS Digital Transformation of Trent Limited Compound Cloud Value with a Combined Move Directly EDF Energy and TCS: 10 Years On The Energy Transition: Empowering Utilities to Achieve Net Zero We can help you maximize the ecosystem advantage. Theme Font size Line height
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Five elements of a business-led digital transformation

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intelligent, automated, agile, and cloud-first organization is the new recipe for success. Time is ripe for enterprises to shift from pockets of innovation to holistic digital transformation. To realign ecosystems, adopt new business models and drive innovation at speed, enterprises must focus on business value instead of building siloed digital capabilities. These five tenets help you achieve sustainable digital transformation: Design agile business strategies: Beginning with a design thinking approach provides a holistic view of problems and helps visualize an agile business transformation to support business goals and the foresight to mitigate anomalies early. Measure business performance: Enterprises must leverage strategic insights to identify and quantify critical needs and create value opportunities articulated through robust business cases that can be continuously measured, tracked, and reported. Digitally empower the human experience: Organizational change management (OCM) helps employees adapt, embrace, and benefit from new digital capabilities by making them collaborative stakeholders. Build the digital core: Pre-configured industry and business solutions can build a digital core with minimal disruptions to business as usual. Accelerate digital transformation efforts up to 25% to seize new growth opportunities. Create a future-ready business: Bring into play next-gen technologies like conversational UX, cognitive and robotic process automation, IoT, and advanced analytics to redefine business processes. Accelerating business-first transformation for a global manufacturer. The client rapidly expanded its market share through a series of merger and acquisition activities. This led to a disparate set of processes across 11 legacy systems, causing inconsistent customer experience, inefficient financial reporting, and suboptimal plant maintenance. To tackle these challenges, the company launched an ambitious transformation plan. The manufacturer began a series of design thinking sessions and identified key industry compliance and traceability requirements. Next, they reviewed the value opportunities that helped develop the business case, followed by ERP vendor selection and building a transformation management office. The end-to-end solution leveraged a change management approach across 28 locations in four countries, in three languages, and was built in 27 months. OUTCOMES These efforts led to a perpetual business transformation model which added significant value to the customer experience, increased sales margins, and: Generated USD 20+ million year-on-year operational savings Reduced USD 18.5+ million one-time inventory costs Optimized finance and technology costs by 43% Saved USD 7+ million annually by enhancing productivity Increased sales margins by 6% to 8% Optimized direct and indirect spend by 12 to 15% A successful digital transformation delivers value to all functions and stakeholders across the company. A successful digital transformation delivers value to all functions and stakeholders across the company. To enable this, the C-suite need to get everyone in the enterprise aligned. Here's a quick summary of the objectives of the business leaders across the functions. An infographic depicting the objectives of business leaders when an organization embarks on a digital transformation. The CEO must create exponential value for stakeholders and demonstrate growth; the CFO improves decision-making by creating a data and insights-driven organization; The COO drives efficiency by leveraging the ecosystem and innovating on supply chains; the CMO enhances the customer experience by leveraging data and advanced technologies; the CHRO anticipates talent capabilities; and the CIO

reimagines the operating model by leveraging advanced technologies. Each business function has specific roles and needs. While they might be operating in silos, they are interconnected to support end-to-end customer experience and focus on proactive business models. When embarking on a digital transformation, enterprises need to understand the business needs across functional organizations such as finance, supply chain, HR, and marketing, as well as within the specific nuances of the industry. Then, these should be prioritized by the value they bring to the end-state. To accomplish transformation in its true sense, an organization will face disruption, and the leaders must reinforce the shift and re-address priorities. Following the journey with the business in mind will help accelerate the journey and encourage adoption along the way. It will also free employees and business leaders to focus on continual innovation and growth. Through engagement with stakeholders and across all teams, sustainable change will be enabled to deliver the anticipated outcomes. TCS Enterprise NavigatorTM provides a business-led framework that maps business strategy, human experience, and industry alignment on a proven course toward quick wins and long-term successes. A technology-driven excellence with a constant focus on business value helps enterprises innovate to achieve purpose, adaptability, and resilience.   Investing in digital transformation to become an intelligent, automated, agile and cloud-first organization is the new recipe for success. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

The definitive guide to creating irresistible workplaces

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actionable steps to move towards a mature HR model. Level 1 Technology-centered Focus on installing a technical system, automating processes, and reducing costs. Level 2 Process-focused Focus on operational efficiency, processes, procedures, and transactions, often with waterfall approaches. Level 3 Outcome-driven Focus on business outcomes, success criteria, and strategy alignment. Level 4 Business transformation Focus on people, design thinking, journey maps, and HR capabilities to balance operational, strategic, and transformation excellence. We interviewed 12 global companies in detail about their Workday implementations and ongoing operations. The findings are astounding. Here are six key takeaways: Enterprises must quickly rethink and reinvent HR in today's hyper-competitive talent marketplace. We believe "The Definitive Guide to HCM Excellence" will be your trusted source in your HR transformation journey. And, don't miss out on getting actionable takeaways from Adobe, Boeing, and GE's HCM transformation journeys. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height =====================

The Digitalized Vaccination Ecosystem: A Step Toward a COVID-free World

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greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Enterprise Solutions / POINT OF VIEW   Muralidharan Murugesan Head, Strategic Solutions, Enterprise Application Services, TCS You have these already downloaded We have sent you a copy of the report to your email again. Administering COVID-19 vaccines to the global population at speed poses a major challenge to governments and communities. The mass vaccination requirements pose a situation that is unique, complex and dynamic in nature, necessitating the creation of a well-knit vaccination ecosystem, connecting every stakeholder -- from the factories to the front lines. Governments and multiple organizations globally are looking to create a digital web across the vaccination ecosystem for: SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height ======================

Simplify Your BI Architecture for Better Business Intelligence

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Transform Cost Optimization with RPA and Machine Learning

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Democratization – A Necessary Disruption in Enterprise IT

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Digital Transformation in the Middle East, Africa

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Eyeing a super app? Here's how to ensure quality CX

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software engineering that tests the reliability of distributed software by introducing failure and faulty scenarios to assess its ability to withstand random disruptions at various stages of software development and in a controlled way in production environment Every ecosystem is unique, and the scenarios in the universe of faults should cover general chaos and ecosystem-specific issues. System scenarios Business scenarios A comprehensive universe of faults brings normalcy to the chaotic possibilities. Switching from traditional, controlled application development to next-generation ecosystem application development is a step change. Understanding and applying chaos engineering principles requires significant upgrades to the existing engineering organization structures. Organizational structure: Chaos engineering is a specialized field like performance engineering. It must be factored in with defined roles and responsibilities, requiring a change in the organizational structure. Shift-right cultural change: Most organizations are comfortable with the shift-left approach and have less hesitation in experimenting in development and test environments. However, a controlled test in the production environment in the shift-right method requires a significant cultural change. Ecosystem partner sensitization: Ecosystems are vulnerable to byzantine complexities resulting in different interpretations by stakeholders in the case of a failure. Every partner in the ecosystem needs to apply chaos engineering principles to ensure the general stability of the ecosystem. Business partnership: A clear business definition of what is 'normal' in a complex environment is vital to creating an adequate fallback mechanism. Tools: Several proprietary and open-source tools cover different aspects of chaos engineering. Organizations should upgrade to address the ever-increasing universe of faults. Conclusion The ecosystem application development model has become an essential element of strategy in several forward-looking organizations. It requires a comprehensive review of all aspects of the software development lifecycle. Chaos engineering ranks high in priority, like security and performance engineering for building ecosystem-ready applications. A suitable investment will ensure a smooth transition to building ecosystem-ready applications and deliver a consistent end-user experience. SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience We can help you maximize the ecosystem advantage. Theme Font size Line height
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Elevating employee experience with GenAI

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GenAI capabilities HR organizations can get a head start by building capabilities for deep contextualization, synergy with next-gen technology, and human-AI collaboration. GenAI architecture for HR The 3Ps of employee experience influenced by GenAI require a new architecture and roadmap for HR teams. About the authors Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Ram Subramanian Tirtha Basu Muniza Aftab Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Ram Subramanian Global Head – Human Capital Practice, Enterprise Solutions, TCS Tirtha Basu Head – Human Capital Advisory Practice, Enterprise Solutions, TCS Muniza Aftab Industry Partner, Human Capital Practice – CMI, Enterprise Solutions, TCS You have these already downloaded We have sent you a copy of the report to your email again.   Employees are increasingly demanding personalized experiences. Just like with so many products and services they use in their daily life, at work also, they are looking for solutions that offer intuitive recommendations and guided learnings. GenAI can be a key differentiator in improving efficiency, productivity, and engagement of the workforce. With its intuitiveness, contextualization, and hyper-personalization abilities, the technology can foster the 3Ps of employee experience—productivity, emPowerment, and purpose. And HR departments are quickly catching up on this.   While fine-tuned large language models (LLMs) will enable the technology infrastructure, the challenge will be building human capabilities within HR teams to bring out the best in AI models. GenAI literacy and a curiosity-driven culture within HR teams will be critical to the success of employee experience programs.   GenAI output may encounter errors, hallucinations, or catastrophic forgetting as the first-generation models are

perfected. If left unaddressed, such deviations from desired outputs could have an adverse impact on employee trust and experience. This presents an intriguing challenge that requires vigilant monitoring of both data quality and quantity by the HR team. For example, GenAI-enabled employee profile summaries and performance data can be leveraged to make important decisions on manpower planning, recruitment, promotions, and other HR management concerns. However, in the absence of thorough anomaly detection methods and governance, the generated output may contain errors or hallucinations. This could be due to sampling bias because of underrepresentation of certain skills or groups, training on inadequate or biased data points, data imputation, or various other issues. Another challenge is the persisting fear that GenAI may replace jobs and displace workers, potentially leading to resistance from employees and HR functions to adopting GenAI. This can create a negative feedback loop that organizations must manage over time. Overcoming the challenge will require the right communication with employees.   The future value of GenAI is in specifics and goes beyond generalization. Getting true value from LLM models requires new skills in deep contextualization. GenAI models are amazing for general purpose usage, but organizations can drive real value when they fully contextualize solutions to create, for instance, company policies, organizational communication, press releases and marketing materials, and management reports. This will require bringing together organizational, domain, and universal knowledge. Next, organizations need to build new synergies with next-gen technologies. The collaborative interaction of discriminative AI, robotic process automation (RPA), and LLMs can maximize the output of GenAI use cases. Predictive AI can be used to forecast suitable job openings based on roles and experience, and automatically track the progress of an application. This can include scheduling interviews and providing status updates. GenAI excels in generating tailored content to help employees learn and prepare effectively for internal interviews. Constructive interaction and synergy among these technologies can lead to comprehensive workplace solutions that will meet employee aspirations.   GenAI will deliver maximum value when collaborating with the most empathetic human minds and human-centered design experts. Human creativity will be critical to building connections and bringing cross-disciplinary output, as also in ensuring responsibility and governance at each stage of GenAI output creation. Figure 1: Value drivers during GenAI implementation An infographic that highlights the three value drivers for GenAI implementation. The first driver, specific context alignment, refers to how LLMs and existing GenAI technology can be captured by bringing together organization, domain, and universal knowledge. The second driver, GenAI with composability, refers to use cases can derive maximum value when narrow AI, automation and LLM play together. Lastly, the third driver, human-machine unification, refers to how human creativity will maximize the GenAI outcome when humans and machines collaborate. Employee experience architecture will undergo a massive change along with the introduction of a new GenAI layer. Enterprise data architecture within the HR organization will feed the GenAI architecture and enable LLM models to create an elevated output for employee experience. Here, GenAI will leverage enterprise strategy, technology, multi-nodal data points, talent information, people skills, and processes to create original content impacting empowerment, productivity,

and employees' sense of purpose. Figure 2: GenAI-influenced employee experience architecture An infographic illustrating how the 3Ps of employee experience, which comprise productivity, empowerment, and purpose, will change drastically thanks to a three-layered architecture. The architecture includes the following: an experience layer incorporates employee experience in the design to enable empathetic event handling. The GenAI layer provides contextual, intuitive, and conscious insights for content processing and fine-tuning. And the enterprise data layer manages employee demographics, data, and policies thanks to data inventories and knowledge management. Use cases Successful GenAI programs are already in action at forward-looking organizations. Some of these are: Use case one: In-context support for newly onboarded employees GenAI has tremendous potential to transform the performance of newly onboarded employees. Let's take the case of a recently joined procurement analyst tasked with supplier evaluation, contract negotiation, and monthly supply cost reporting. While the analyst can handle general tasks on her own, navigating exceptional scenarios will require contextual understanding. For example, when faced with an expired vendor contract, a new employee may struggle to navigate through the organization's hierarchy to seek information on the contract. GenAI can leverage well-trained LLMs to intuitively intervene in company resources and explore extensive domain knowledge, such as terms that need to be considered, whether there should be an extension, or any pricing negotiation clauses. GenAI can connect the current requirements to past actions in the company's data network and provide the required summary of information on extension or renewal of a contract as desired by the analyst. This acts as a starting point for her to put up a case with the right stakeholders. In this use case, GenAI will not only empower the employee with domain knowledge and digestible summaries, but also make her productive from day one. Use case two: Bridging the gap between employee readiness and purposeful career opportunities Traditional learning trajectories designed to support internal career mobility might no longer offer genuine insights into the emerging career landscape that employees may see in the next five years. So far, AI has been able to calibrate and make predictions through the conventional summary of job descriptions, resumes, or skills, resulting in a successful match. However, it can go beyond identifying skills gaps and learning journeys, and can coach employees and prepare them for interviews. Often, internal job positions go unfilled not due to lack of capabilities, but because candidates struggle for the right guidance. GenAI can provide timely advice, big picture insights into a role, job expectations, behavior skills required, and a readiness plan based on previous successes. It can even contextualize interview questions based on an interviewee's profile and past background. Based on the content from internal and external nodal points, it can serve as an interview assistant, helping candidates model interviews and prepare using simulations. This use case helps aspiring employees identify opportunities for career growth and empowers them with all the information to tap those opportunities, in a few prompts. Use case three: Injecting consciousness into employee appraisals and feedback GenAI can enrich the feedback process by addressing human bias due to the recency effect. For employee interactions or surveys, GenAI can provide a neutral summary of all interactions and events over a specific period. For an annual IT survey, for example, an LLM can summarize an employee's interactions with the IT department,

highlighting the department's performance against a service. This unbiased layer of information aids the function in responding to the survey. A comparable scenario can be drawn during performance assessments. LLMs can mitigate biases, common in human nature, by generating performance summaries linked to multimodal data points. For example, it can be used to counter the tendency to overemphasize projects shifting from red to green, acknowledging the proactive problem-solving of consistently green projects. GenAI can empower managers with contextualized and information-synthesized performance feedback summaries, reducing cognitive bias. All of these use cases elevate consciousness, making employees feel empowered and productive, thereby serving the true purpose of feedback and evaluations. A GenAI framework for HR Prioritizing which HR use cases to pursue in a rapidly evolving technology landscape requires the right framework and choices. We recommend a framework that analyzes use cases and prioritizes them based on the impact on employee experience and ease of implementation. The figure below provides a sample of 10 indicative HR use cases. Enterprises choose the right GenAI use case for enhanced experience and return on investment. Figure 3: A priority framework for GenAI use cases impacting employee experience The infographic highlights how the TCS Prioritization Framework determines the priorities of various GenAI use-cases impacting employee experience. The infographic maps ten sample GenAI use cases to a quadrant chart that showcases what the impact on employee experience would be against the ease of implementation from low effort to high effort. The chart allows you to focus on low effort tasks with high impact, while strategizing on how to achieve high effort, high impact tasks. You may also decide that some high effort low impact tasks are not necessary. The way forward GenAI will reshape how organizations assist their customers, engage with employees, and manage their work processes. The GenAI disruption is clearly driving major investments in the HR and customer engagement areas, and this investment is merely the beginning of what lies ahead. GenAI can bridge the distance with employees and make the relationship between employers and employees increasingly non-transactional. By taking care of routine tasks, it can free up HR business partners' time for more meaningful employee connects. Unlike conventional AI, GenAI applications can add an emotional angle to employee engagement and enable HR departments to make empathy-based decisions. It is evident that enterprises that can utilize GenAI in a planned, cost-effective, and ethical manner will gain a strategic, competitive edge. As a first step, HR must start with a GenAI fitment assessment of their HR-IT ecosystem and arrive at use cases for elevating the 3Ps of employee experience. The assessment should involve deep-dive discovery across personas, processes, and current technology landscape, thereby identifying employee journeys and user stories that can be transformed with GenAI. Gig Economy and Its Implications on Human Capital Management Generative AI in Finance: Opening up a Sea of Possibilities How Generative AI is Revolutionizing the Enterprise Landscape TCS GenAI for BFSI We can help you maximize the ecosystem advantage. Theme Font size Line height
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stabilize the application post go live. With deep functional knowledge and technology expertise, TCS helped BT identify and overcome technical as well as business challenges. Mike recounts TCS' commitment and positive attitude, which helped effectively manage and even de-risk the engagement. TCS leveraged its experience to bring in immense knowledge of business, challenges and risks involved with projects such as this one. Mike affirms that this, coupled with the expertise in methodologies and tools, is a key reason why BT partners with TCS. Backed by this robust, yet flexible partnership that the two organizations have developed, BT completely transformed people and talent management.   SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process Croma automates customer service with Salesforce Service Cloud Transforming Lexmark's Digital Core with SAP S/4HANA Generative AI in HR: Revitalizing the 3Ps of Employee Experience Theme Font size Line height =====================

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Crystallus on Salesforce, we help customers realize their digital transformation vision and deliver superior business outcomes. Read about our solution 01. Advisory Business case development and cost of ownership Change management and planning Cloud strategy Content strategy Customer experience strategy Designing and blueprinting DevSecOps 02. Implementation All Salesforce core products Salesforce industry cloud Salesforce Platform Salesforce Einstein and Data Cloud MuleSoft Salesforce Trailhead Salesforce Net Zero Cloud 03. Support and scale Application optimization Business process efficiency audit Managed services Marketing operations Salesforce Lightning migration Shared services System evaluation and reference architecture services User interface lab Salesforce certified professionals Global certifications TCS Pace Port™ innovation hubs Accelerate transformation of business support systems and develop readiness for newer business models and market adjacencies. Elevate customer shopping experience and empower dealers with remote diagnostics that use cognitive and connected ecosystems. Create new revenue streams and improve sustainability with innovative business models, such as demand-side management and multi-retail offerings. Attract, onboard, and retain subscribers, drive media planning, and streamline creative content management processes to accelerate global expansion initiatives. Provide insights that allow financial services professionals to provide personalized product recommendations and services to their customers. Elevate sales enablement, optimize routes to reach consumers, drive brand consistency, simplify retail planning and execution, and maximize customer lifetime value. Drive patient outcomes, engage healthcare professionals, improve the quality and affordability of care services, and help organizations adopt value-based care and direct-to-consumer business models. Enable federal, state, and local governments to rapidly digitize and transform themselves, become more agile, improve internal efficiencies, and enhance citizen experiences through reimagined service delivery. Optimize renewals or run-rate business for committed revenues. Empower dealers and distributors through B2B subscription commerce. Elevate employee experience from hiring to retention. Simplify selling and renewals to maximize profits. Deliver frictionless customer experiences and seamless operational performance by streamlining maintenance, repair, and overhaul (MRO) operations through sustainable travel ecosystems and hyper-personalized journeys. Salesforce Partner Innovation Award - 2022 Salesforce India Partner Ideathon Winner - 2022 Leader in NelsonHall next-gen Salesforce services – 2022 Mulesoft Premier Partner – 2022 Salesforce Partner Innovation Award - 2021 Salesforce Partner Innovation Award - 2020 Croma automates customer service with Salesforce Service Cloud Lighting up AGL's path as a multi-service energy provider DuPont E&I improves customer service TCS helps Linde scale grow and enable business automation Digital sales transformation for Olympus Learn how we can help you drive superior business outcomes on Salesforce faster. Theme Font size Line height =====================

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Boost your business performance with data and analytics

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Win big on your sustainability KPIs with data and analytics

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through analytical interventions across the entire value chain. Sustainability is essential for individuals and enterprises and must be made an intrinsic part of business strategy and culture. We must reimagine how enterprise sustainability is understood. Climate change, damaged ecosystems, and depleted natural resources have made existing business models risky and unpredictable. A transition to a more resilient, resource-efficient approach is vital for every industry vertical's future. There is no singular cause that impacts the environment since the factors vary from market to market. Every enterprise activity that weighs the environmental impact against its benefits must be assessed routinely in an instinctive way just as cost-to-benefit ratios are examined. To enable this, the solution must incorporate the following characteristics: Focus on data and analytics—it is a key sustainability enabler. Shift from managing environmental impact (in terms of a company's own operations) to a perspective that addresses the entire value chain and overall impact. Integrate sustainability and data management levers that provide control and foresight on the overall impact of its activities. Service providers can deliver sustainability analytics as a service through a service delivery paradigm that ensures these requirements are best served. They provide analytical insights that can enable intervention options for enterprises to deliver their best outcomes for sustainability performance. A central component of the service paradigm is an over-arching solutions framework for measuring, monitoring, and disclosing holistic enterprise sustainability data and performance. The sustainability-as-a-service framework can be set up by aggregating a set of point solutions and accelerators integrated in an underlying common data and process model. This enables a set of specific services such as net zero models, circular services, disclosures, and others that address the sustainability needs of the enterprise. In turn, this ensures uniformity of service outcomes and traceability of reported KPIs such as gas emissions, renewable resources, resource consumption, and waste management. It can be extended to incrementally add new capabilities as more sustainability components are automated in the target enterprise. The framework is targeted to apply across all vertical markets as a service delivery methodology for enterprise sustainability. With pre-built accelerators, the implementation of service framework components can be fast tracked. It can also cover key areas of enterprise sustainability. This allows monitoring of sustainability risks and opportunities by simulating operational scenarios for decision-making, measuring results, and creating compliance reports for stakeholder groups. However, for this model to work well, an enterprise must have a clear, strategic direction and aspirations. It will need to identify and monitor key insights, translate them into strategic risks and opportunities, and execute operational rigor around them to be successful. To do this, the services, and the underlying solution framework must enable users to navigate methodologies, jargon, and unfamiliar data that prevent progress. This will allow a non-practitioner of sustainability to use and leverage the services and derive business outcomes. What's more—the data backbone aggregates the sustainability data sets into a virtual layer. The data and process models then feed into a set of platform services, built either with existing enterprise assets and intellectual property or a set of custom tools that fit into the overall framework. The sustainability services are realized by orchestrating these technology and platform services into a host of platform end points. From here, they are either consumed directly in

a machine-first mode or via full-time equivalent (FTE) based manual interventions for delivery of accelerated business outcomes. Enterprises can realize multi-fold advantages by using a data-driven, service delivery approach and reap the following benefits: Ensure consistency in sustainability reporting. Enable complete traceability of sustainability outcomes to enterprise actions through its underlying data universe and process model. Empower the organization to have control on not just one or two tactical areas but a holistic impact view. Permit incremental deployments of services based on enterprise budgetary priorities that accelerate desired outcomes. Provide subject matter expertise so that users need not be sustainability practitioners. By realizing these benefits, enterprises can ensure improved environmental compliance and transparent disclosures, better visibility, and control on sustainability performance data and KPIs. This helps businesses minimize supply chain risks, source responsibly, generate new greener opportunities, and deliver on commitments around climate change and environmental impacts. The TCS A&I Sustainability Analytics services backed by its solution accelerator framework paves the path to sustainable business operations. Explainable AI: Transparent Decision Making with a Post-hoc Approach Taking a responsible route to enterprise AI adoption Data Maturity and its Vital Role in Enhancing Business Efficiency Retaining top talent with intelligent workforce management Looking to turn data into value? Theme Font size Line height =====================

Offloading Mainframe Applications to Hadoop

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Big Data Capacity Planning

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Three Keys to Winning With Big Data

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begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. white paper   Dr. Satya Ramaswamy Former Global Head, Digital Enterprise Unit You have these already downloaded We have sent you a copy of the report to your email again. Big Data has been a big topic for years now, and more and more companies are using it to optimize their businesses and create new sources of revenue. However, some companies are using Big Data better than others, and they share three common factors in terms of how they are winning with Big Data: TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption How Master Data Management Enables Resilient Supply Chains What Master Data Management Can Do for Your Business A Guide to Artificial Intelligence Governance Best Practices Looking to turn data into value? Theme Font size Line height

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Trade data seamlessly with data marketplace platforms

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publish their requirements. With a data marketplace platform, business users could extract value from the data and identify top and bottom-line opportunities. The platform enables discovery, democratization, monetization, and commercialization of data. It further promotes ethical data exchange between entities while maintaining strict compliance with privacy, trust, risk, legal, and technical aspects of enterprise data. This leads to seamless data exchange across the enterprise, the ecosystem, and/or cross-industry collaboration. All this while promoting data governance through curated, fit-for-purpose products pre-published with correct lineage, provenance, and privacy preservation. Data marketplace platforms will deliver on the Business 4.0™ levers of exponential value, mass personalization, leveraging ecosystems, and embracing risk. Today, banks and financial institutions address data governance sporadically. We believe the concept of an enterprise data marketplace is rapidly gaining traction in the industry. Some institutions had manual processes to make data available in the past. This was only done when the requirement arose. But a holistic platform can help keep data streams open and readily available regardless of where the need stems from or when it is needed. Every day, regulators find novel ways to tweak existing data regulations as well as introduce new compliance policies. Addressing these dynamic changes and mapping it to the concerned function will improve with a data marketplace. This will help banks and other institutions keep up with changing regulations and, more importantly, interpret them correctly and efficiently. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights SAP S/4HANA: Simplifying and Modernizing ENGIE's Billing Process The Rise of Sustainable and Responsible Supply Chains Looking to turn data into value? Theme Font size Line height
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Taking a methodical approach to data monetization

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you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. WHITE PAPER   Sandeep Saxena Head, Data Marketplace Program, Corporate R&I, TCS Santanu Ghosh Leader, Sustainability Ecosystem for Analytics and Insights, TCS You have these already downloaded We have sent you a copy of the report to your email again. With data growing at clip speed, organizations are seeking ways to commercialize data. However, not all data monetization efforts are successful, given the volume of unregulated data and technical challenges related to data privacy, discovery, quality, security, sourcing and accountability. For organizations to successfully monetize data, it is crucial to ensure right pricing and value. This requires analyzing data context, market value, historical demand and competitor pricing to arrive at a successful data pricing model. This can be done by: Building a data pricing model to classify data into a product Taking a quantitative pricing approach to determine base price Improving final price with qualitative pricing This will ultimately help reduce revenue leaks, increase customer retention and improve decision making for creating new value streams. To know more on data commercialization, please download the PDF. TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption How Master Data Management Enables Resilient Supply Chains What Master Data Management Can Do for Your Business A Guide to Artificial Intelligence Governance Best Practices Theme Font size Line height ======================

Reinventing Employee Experience End-to-End

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Why Data Quality Matters More in a Business 4.0™ World

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Ensuring Safe, Secure and Sustainable AI

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Data Marketplace: A Necessary Lever for Business Ecosystems

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Leveraging Hadoop for Effective Data Archival

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Talent Management Shifts From Downsizing to Rightsizing

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Retaining top talent with intelligent workforce management

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employee engagement. Using analytics, rich internal data, and reliable market intelligence, leaders can make reforms that give their organization a competitive edge. Data mining can provide a deep dive into the individual's needs and provide tailor-made solutions. Predictive and prescriptive analysis can help in defining a framework first and then deploying the tools to intervene in a time-sensitive manner. CARE is a framework driven by pre-emptive data-led interventions that helps reduce potential attrition in an organization. CARE stands for collaborate and anticipate for retention and engagement. The CARE framework is built on three pillars. Act on the trigger, not on the outcome: Most organizations are reactive in their approach. Their 'retention' machinery springs into action only when an employee decides to leave. Our framework captures early warning indicators and streamlines internal data sources into a single source of truth for analysts and data scientists. Collaborate effectively and efficiently: Organizations need to improve accountability and traceability through a call to action rather than traditional workflows. KPI-centric analysis and visualizations with interactive dashboards can depict actions taken at every step in real time. Once internal human resource management systems (HRMS) are reinforced with bolt-on analytics and data mining accelerators, the impact across the organization will be exponential. 360-degree approach: Overreliance on yearly engagement surveys to capture the employee's pulse and sentiments results in two parallel and disconnected views of the same organization. One which management wishes to believe and the other one which often exists in reality. Real-time tracking of employee sentiments through digitally connected case platforms and descriptive analysis to capture trends can make a huge difference. An illustration depicting the three core pillars of the CARE framework: 360-degree inputs, trigger-centered, and participative. The core pillars are supported by the organization-wide HR management systems, connected case management, and quantitative/qualitative analysis. Workforce analytics when integrated into the CARE framework helps organizations retain and nurture top talent. Most organizations either have a self-developed or a third-party HRMS system. These systems need to be supplemented with cutting-edge analytics accelerators and direct data discovery tools that abide by global and local privacy regulations. A framework borne out of integration of workforce analytics into CARE will be centered on four key themes of HR management—employee experience, compliance, productivity, and wellness. Cognitive assessment of candidates using analytics during recruitment helps hiring managers decide whether the candidate is an optimal fit for the organization. Customized training programs and alternate job fitment suggestions deliver highly personalized employee experiences and helps them excel in their desired roles. Another key input which goes into the CARE framework is an employee's wellness index. A recent study by Qualtrics showed that almost three-fourth of employees want their managers and organizations to focus on their mental and physical wellbeing, especially after the pandemic. Capturing an employee's holistic wellness index includes capturing the voice of the employee in real time. This will help organizations gain an unassailable lead in retaining and developing key talent. An organization's success is inextricably linked to its ability to connect and engage with employees on a personal level. A great way of doing that is by creating hyper-personalized experiences—by extracting data from disparate sources and transforming them into meaningful insights that

drive sustainable actions. Leaders looking to differentiate themselves from their competition can look at workforce analytics as a vehicle to optimize their performance. They need to embark on an investigative journey, along with their chosen consulting and analytics partners, to assess all aspects of their people operations and create the environment where people feel they can realize their full potential. On average, one resignation has a cost impact of a minimum of 2.5–3 times the monthly billing of an associate which includes: One month of reduced productivity (notice period) One month of no billing One month for the new employee to integrate and perform to full potential Hiring costs (man hours, payment to agencies) Organizations should focus on making sure employees are well-aligned to the responsibilities of their roles, as well as feel connected to the organization overall. It is the responsibility of managers and leaders to ensure employees are not overloaded with tasks that they are unable to finish within the scope of work. LAURA HARDING Modernize your data centers with TCS Daezmo™ TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption Enterprise innovation with TCS Business Analytics Solutions Explainable AI: Transparent Decision Making with a Post-hoc Approach Looking to turn data into value? Theme Font size Line height =====================

Transforming T&E Management through Gamification

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collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cognitive Business Operations / white paper Pradeep Kumar Kalaimani Head – Finance CoE, Cognitive Business Operations, TCS Praveen Alluri Pre-Sales Lead, Finance & Accounting, Cognitive Business Operations, TCS You have these already downloaded We have sent you a copy of the report to your email again. Travel and expense costs can reach 6 to 12% of your corporate budget. It is also a haven for fraud and violations. With a robust, mobile-friendly T&E platform built upon gamification, you can cater to diverse employee requirements, while keeping tighter control over expenses. TCS Intelligent Edge Computing Services: Unlock Next-gen Performance Morrisons Partners with TCS to Transform HR Operations and EX TCS Workplace Modernization Solution: Improve Employee Experience Digital Finance: 5 Key and Actionable Ways to Unlock New Value Theme Font size Line height =====================

Navigating enterprise AI adoption responsibly

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greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Data and analytics / Whitepaper 5 MINS READ Nagendra Kumar Lead and Principal Innovation Evangelist, TCS Srinivasa Raghavan Venkatachari CTO, Life Sciences, TCS Ravindran Subbiah Entrepreneur-in-Residence, TCS Incubation You have these already downloaded We have sent you a copy of the report to your email again. Ethical AI is vital to the widespread adoption of enterprise AI solutions. As a disruptive technology, AI plays a pivotal role in spearheading digital transformation. Its ability to reason and make decisions can sometimes have unintended outcomes in the form of ethical, security, and compliance risks for enterprises. Automated algorithms without a framework of ethics may also perpetuate pre-existing biases. To enable AI technology adoption at scale, organizations must address any gaps in trust, privacy, and compliance. Ethics is an overarching concern. UNESCO's draft on responsible AI implementation emphasizes the importance of a robust ethical foundation. Ethics must be embedded into the AI governance framework through a set of values, principles, and policies. Responsible AI brings together ethics, transparency, accountability, fairness, security, privacy, and human centricity to transform enterprises. The three key stakeholder groups in any AI application are the consumers, the enterprise, and the community. Responsible AI must address the 'human' element and understand the trade-offs and metrics for its use cases. This is achieved by aligning the core aspects of responsible AI (AI transformation, governance, and engineering practices) with stakeholders' needs rather than addressing them individually. Responsible AI sits at the center of three key stakeholder groups—consumer, enterprise, community—each with clearly defined expectations. Consumer A human-centric AI empathizes with users. This helps users augment the AI with some degree of human intervention in the AI-led decision-making process. Respecting consumers' privacy and letting them decide what their personalization level should be is the way to build trust. Community The community expects AI's adherence to regulations, social norms, and ethical principles. This includes: Ensuring demographic parity and bias prevention against people and communities. Establishing accountability, governance, and redressal mechanisms for AI-based systems. Preventing malicious use of AI through surveillance and controls. Addressing the impact of AI systems on sustainability. Enterprise Enterprises address consumer and community expectations and standards on the road to business growth. The challenge is to balance business value with trust by carefully navigating brand risks, fairness, ethical principles, and compliance. A figure depicting responsible AI for consumers, a human-centered business that covers enterprise value and risk, social and environmental impact, and sustainability. The adoption and governance of responsible AI is an enterprise imperative. As AI-based decision systems get elevated to replace human decision making, they must embrace transparency, fairness, and accountability. Technology leaders must take a

responsible route to AI adoption. To drive successful AI-led enterprise growth, organizations must: Scope the right use cases for investment in terms of value versus risk qualification, process and data readiness, and a target automation level. Drive the required data, talent, technology, and vendor strategy to ensure the right foundations are in place to deliver required accuracy, robustness, and human-centricity. Manage the people versus process change impact by embracing disruption. Revamp, reskill, and reorient to build trust and drive AI adoption.   Building responsible AI requires standardized engineering practices with a framework that is robust, explainable, auditable, and bias-free. A streamlined AI dataops and modelops life cycle with governance and accountability will ensure transparency and collaboration across teams. These practices need to be supported by an integrated toolset to drive data quality, model performance, explainability, and continuous learning. The toolset should be comprehensive enough to address the variabilities that the enterprise needs such as life cycle, data types, levels of granularity in the analysis, artifacts, access control, and business rules. Protecting an individual's privacy and being resilient against attacks remains paramount for any toolset. There are techniques such as adversarial training, defensive distillation, and restricted visibility of confidence scores that can offer protection against security attacks and evaluate differential privacy. A figure depicting enterprise AI adoption for AI governance and oversight, AI engineering practices, including ModelOps/DataOps, and the AI transformation journey. As AI-based decision systems are elevated to replace human intervention, they must embrace transparency, fairness, and accountability. Enterprises must take a responsible route to enterprise AI adoption. The AI systems should be designed keeping the human and societal context in mind.   They need to embed a proactive and value-driven stakeholder-centric mindset at every step of the AI transformation journey. A clear path must be paved while maintaining a high degree of customer value, risk mitigation, and ethical lapses.   Modernize your data centers with TCS Daezmo™ Enterprise innovation with TCS Business Analytics Solutions Explainable AI: Transparent Decision Making with a Post-hoc Approach AI Solutions & Collaborative Intelligence for Accelerated Outcomes Ready to move from enterprise to ecosystem? Theme Font size Line height
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Well-defined Data Valuation Approaches for Enterprises

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positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. data and analytics / whitepaper Ankoor Kulkarni Head, Life Sciences, Healthcare and Public Services – Analytics & Insights, TCS Amit Bajaj Senior Consultant, Data for AI Practice, TCS Harmandeep Singh Bhandal Business Relationship Manager – Business Insights You have these already downloaded We have sent you a copy of the report to your email again. As data stored in isolation cannot generate any value or insights, enterprises are increasingly classifying them as assets of economic value and institutionalizing them in financial statements. It is crucial to understand the relationship between value and repeatable usage, time, divisibility, and quantity in order to identify whether and how the value of data should be reported in the balance sheet. Like assets, the value curve of data decreases when they are not upgraded to include up-to-date records. Viewing data as the precursor to information and adapting the data, information, knowledge and wisdom pyramid can help generate information that translates to knowledge, resulting in overall wisdom. Three methodologies can be established to value data based on its potential for usage: Modernize your data centers with TCS Daezmo™ Enterprise innovation with TCS Business Analytics Solutions Celent highlights the merits of TCS Digital Home Lending Solution Explainable AI: Transparent Decision Making with a Post-hoc Approach Looking to turn data into value?
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A 12-C Framework for Enterprises to Maximize AI Benefits

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Dimensions of AI: Righteous, Reliable, and Restrictive

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Management Walking the Path of Cloud Native for Enterprise Digital Transformation No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ======================

Role of Data Efficacy and Human Intervention in Explainable AI

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enterprises from deriving value from data and poses challenges for explainability. The business entities linked to limited usable data sets also face complex human-in-loop challenges, prompting them to identify more usable alternate data and extract data from their ecosystem of customers, vendors, suppliers, partners and regulators. In order to remain competitive and retain a leading-edge, businesses must leverage the larger ecosystem for data. We explore how enterprises can manage explainability mandates with post-hoc technique with deep learning. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it.

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Closing the sustainability data and insights gap

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catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Data and Analytics / White Paper 10 MINS READ Wilco Kaijim SDI Lead and Consulting Partner Gopesh Sharma SDI Consulting Partner You have these already downloaded We have sent you a copy of the report to your email again. Enterprise data and insights used to be focused mainly on traditional performance objectives. Today, companies have new enterprise performance objectives and KPIs around sustainability, with many sustainability-conscious stakeholders involved. However, there's a gap between enterprises' sustainability strategy and available sustainability data and insights (SDI), and this needs to be addressed. Most enterprises are facing a gap between their sustainability strategy, objectives, KPIs, and available sustainability data and insights. The journey of becoming a sustainable enterprise is dotted with many challenges. Sustainability data and insights is one of them. Based on the enterprise sustainability strategy, objectives, and reporting needs, there are hundreds of new sustainability KPIs coming into play. For instance, within the organization, business functions are embracing them for various processes and products across their lifecycle. From an ecosystem perspective, sustainability standards and regulations are becoming clearer and more mature. However, they are still not uniform within one country, let alone across the globe. But what's clear is that the transition to a sustainable enterprise is not a standalone transformation, but one that takes place as part of an evolving nested ecosystem and a connected SDI foundation. In fact, a connected ecosystem is a core requirement for a sustainable enterprise. A figure illustrating how key KPIs and data insights contribute to closing the SDI gap to ensure a sustainable enterprise. Sustainability is a new business imperative—it's now an essential performance objective for organizations to stay ahead. Enterprise data and insights have traditionally been focused on performance objectives such as cost, quality, time, and flexibility. However, in a sustainability-focused enterprise, there are different objectives, concerns, SDI needs, and stakeholders. Like a CFO who wants to understand not only the financial risks but also the environmental risks, or a CPO who needs to focus more on responsible sourcing and the sustainability impact of buying decisions. Or investors who put pressure on the organization to embrace environmental, social, and governance (ESG) investing. Whether an enterprise is able to meet the demands of various stakeholders and where it is on its sustainability journey depends on the SDI ambition and the SDI maturity of the enterprise. Defining SDI ambition and maturity Often defined by specific ESG goals or material topics, SDI ambition and maturity reflects the value of SDI over time. Most enterprises focus on regulatory compliance as step one of realizing their SDI ambition, followed by an emphasis on transparency, insights, and operations support. A higher SDI ambition relates to strategic decision making using real-time data and insights, along with finance control towers, to maximize financial and environmental profit. To define an enterprise's SDI ambition and maturity, the SDI maturity ladder can be used. It has six focus areas: We observed that enterprises follow focus areas 1 to 6 sequentially, but they also start to learn and grow in all six areas in parallel. Focus areas 1, 2, and 3 are essential to grow value in areas 4, 5, and 6. Depending on where they are on the SDI ambition and maturity graph, the sustainability roadmap will be different for each enterprise. Start with the end in mind but get the basics right first. An SDI framework can

help build a robust and trusted SDI foundation that accelerates the transformation to a sustainable enterprise and closes the SDI gap. The SDI framework must cover the following three phases: Assess: Sustainable development goals (SDG) and targets of the enterprise ecosystem including ESG policies and practices. Sustainability goals, prioritizing areas of major impact and related KPIs. Enterprise sustainability governance identifying key enterprise stakeholders and major ecosystem partners. Create: SDI strategy and target operating model: This includes SDG/ESG objectives, KPIs, SDI governance, standards, business rules, processes, functions, and SDI architecture design. SDI framework: This includes data definitions, data management, data ingestion, data storage, data processing, data enrichment, data traceability, data security, data services (analytics, visualization, reporting, applications, SDI data sets), and SDI automation. Extend the SDI framework: This will require an SDI knowledge corpus for AI/ML, with an SDI digital twin for simulation and data lifecycle management with SDI connect (nested ecosystem data sources and data needs). Deploy: SDI products and services SDI business alignment, ownership, and communication (vertical and horizontal) SDI training for key users and SDI help desk setup SDI change management, experience, and feedback loop Live SDI services A resilient and trusted SDI foundation is essential to accelerate the transformation to a sustainable enterprise and to close the SDI gap. Resilience is a requisite, as the SDI foundation will mature and grow over time, adapting to changing internal and external requirements and using the learnings from the journey to drive the transformation to a sustainable enterprise. Enterprises should invest in building a trusted sustainability data and insights platform. It will form the foundation for compliance reporting, operations support, and strategic decision making, among others. New KPIs should be identified depending on new sustainability data models, data sources, and sustainability metrics. Standardized services should be included in the SDI foundation to unlock data and insights for internal and external users. SDI services they can build, buy, join, and share. Enabling all this on a robust SDI foundation will require the right digital technologies and sustainability skillsets. SDI-led sustainability transformation must be a part of enterprises' innovation agendas and will involve many internal and external stakeholders. Transformation to a sustainable enterprise is mostly an 'agile add-on' approach rather than a big bang long-term change to the landscape. The path to a sustainable future is best paved by getting the basics right first while marching on with the end in mind. TCS Datom™: Align your data, analytics, and AI strategy TCS Envirozone™ TCS Clever Energy™ Makes Buildings Smarter and More Energy Intelligent decisioning for sustainable operations Looking to turn data into value? Theme Font size Line height
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Data mesh: Helping telco companies build data ecosystems

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sector ----- Services Harness the Power of Data and Analytics for better Business Outcomes Highlights In this article Data ecosystems Introducing the data mesh Digital engagement Network platform agility Enterprise transformation is mandatory Data experience About the author Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Mark Wall Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 10 MINS READ Mark Wall Consulting Partner and Advisory Services Lead You have these already downloaded We have sent you a copy of the report to your email again. Why an 'ecosystems ready' data operating model is the next big thing for the telecom sector. Getting a data strategy right sometimes requires different perspectives and lenses. For example, CSPs haven't always been known for their highest-ranking consumer satisfaction scores when compared to other industries. Yet, they have done well in building resilience and adaptability, while providing mission-critical and even life-saving connectivity. This gives industry leaders a unique opportunity to build greater trust with customers and to thrive in a connected digital future. Investments in data and security will be the foundation of this journey. Emerging from the traditional domains of telecommunications business models, a data mesh approach embraces the natural organization of a business across its functions. The data mesh approach represents a fundamental shift in how data can drive transformation. Over the last few years, CSPs have invested in three key domains to drive project-based outcomes: digital engagement and empowerment, network platform agility, and enterprise ecosystems. Most have started viewing data as a tactical requirement to boost a project's outcome. Building on this investment model, these CSPs are also partnering

with cloud hyperscalers to innovate platform business models and grow new revenue streams. These partnerships are forged by organizing data in the cloud for accelerated value. This has influenced data strategy. As the shift to cloud is underway, new regulatory requirements such as the Telecommunications Security Act (UK) will secure networks and protect consumers against fraud. CSPs need to build robust data management across public and hybrid clouds. Data governance capabilities need to be upgraded to handle the deployment of data, analytics, and machine learning across multiple clouds and hybrid (on premise) deployments. Cost-effective governance with a centralized model that supports federated approaches must be considered by CSPs. This will enable the adoption of AI/ML within the business domains of customers, networks, and the enterprise. The data mesh approach will help CSPs conceptualize, categorize, and simplify creating outcomes from data by closely aligning to how the business views itself. This would apply regardless of whether data science, analytics, or predictive modeling is used. Enhancing net promoter score (NPS) and customer satisfaction with a data mesh changes how data is provisioned by intelligently supporting data consumers to address business outcomes. For example, this can be through a typical access path using a database to query the data. Alternatively, this can also be through an API to pull the required data into a CRM application in real time to create a next best action recommendation. The data product should be able to handle the multitude of access demands, but importantly, use the same data sources regardless of the consumption pattern. Many CSPs are conglomerates formed through mergers and acquisitions that may have taken years to close. This makes it challenging and expensive to build a singular customer view, connect experiences, and create outcomes such as enhanced NPS across brands. Often, data assets are deployed into business units and operate in silos and therefore few economies of scale exist through asset reuse. The impact is that many different solutions exist, and this impedes the value that the data assets could add. An example of this is witnessed in the limitation imposed around customer network experience data. It requires a real time combination of customer contact and profile data sources with network and session data. Data technologies can help boost consumer engagement. But they can also hinder it if data platforms are not modernized to reflect the latest real time digital capabilities deployed into sales channels. Take, for instance, secure data access platforms, contact agent analytics and optimization, and customer insights analytics and predictive models. To get maximum mileage out of these data solutions, companies need to build the capabilities that support them. These include active data governance, master data management, and activated metadata. Networks are traditionally vendor-managed where black box systems manage data and optimize network equipment using proprietary insights. This is changing. To unlock insights, typically, licenses must be shared with a customer contact center or the group corporate function. Recently, some efforts were made to create open standards in network telemetry. Network initiatives for full service CSPs (whether fixed wireline, wireless, or satellite) must ultimately integrate back into the converged network experience. Real-time insights across the network can be integrated into an intelligent orchestration engine that makes decisions using orchestrated automation and AI. Decisions typically reconfigure software-defined network elements on the fly after modeling near-future scenarios quicker than a human operator. If

necessary, operators can redeploy or reconfigure software-based network functions to meet SLAs and optimize customer experience. Having the ability to self-drive the network using customer experience insights is the next stage of networking's evolutionary journey, but many challenges exist. Networks can also be empowered to drive SLAs around energy optimization and sustainability, all while reducing mean time to resolve (MTTR) and cost of operations. The time is now for the industry to re-platform to a digital enabler, by leveraging data-driven insights with AI to create new digital products and services. CSPs must adopt a new operating model, which enables products and services innovation across business domains, and within an ecosystem of hyperconnected partners. CSPs are adopting aspects of operating models from technology giants. Building trust around personally identifiable information (PII) is a mandatory requirement, and sovereign clouds are being deployed behind the CSP firewalls to safeguard this critical data in context. It starts with the modeling and consolidation of user journeys (consumers, business partners, employees) and communications channels using analytics and eventually predictive models using AI/ML. This new data insights capability can expand into an emerging area of technical communications. Where telco-owned platforms can combine data and insights around connectivity and machine intelligence to drive new industry use cases. For example, use cases for smart cities, smart factories, digital healthcare, and intelligent transportation. CEOs of B2B and wholesale divisions can repurpose legacy connectivity services. This will drive new outcomes within partner firms such as enhanced sustainability for smart cities and support design and development of new digital services. All this while growing monthly recurring revenue (MRR) and achieving higher ROI from capex investments. Data experience is an enabler that the industry is adopting from the user experience domain to derive value from data. New architectural patterns in data are emerging in the adoption of microservices for data meshes. These patterns help improve security and data access across business domains. They also make day-to-day wrangling with data much more fluid now than in the last five years. Having a deep understanding of consumer and user preferences is a must to create highly contextualized and personalized services. However, this alone isn't enough to fully accelerate business value from data. Having the right data security patterns can help drive a better data experience for different user groups across business domains. Telcos looking to begin their data journey must start with assessing and identifying data operating models and understanding the critical role they play in making business and operational support systems transformation a success. Next generation communication networks are removing constraints in society, the economy, and in businesses through increased bandwidth, reduced latency, and high definition and interactive digital services. The next thing to keep in mind is that having the right skills and a capable team can accelerate the journey. A purposeful business-led team can help identify the optimal technology, people, and process roadmap, in a technology-agnostic manner. Having the right data mesh can ensure that the maximum value from data can be realized. This delivers on the promise of 5G and fast fiber services by supporting the near-to-real time business that consumers and businesses demand today. If we can't move data and solve problems in real time, the large investments going into networks toward transformation will be held back. If you can arrive at truth faster than your competition, this insight will

feed your algorithms to give your business the real time edge needed today. This is what we call managing business at the speed of experience. Data Management in 5G Networks for Driving the Networks of the Future Cognitive Network Operations: Telcos to Monitor Network Health TCS TwinX to Help Organizations Improve Customer Addressing the Sustainability Data and Insights Gap Looking to turn data into value? Theme Font size Line height =====================

Generative AI: Address enterprise goals with synthetic data

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personal identifiable information (PII) or personal health information (PHI) is vital for AI/ML models to solve complex business problems. With strict data privacy regulations such as GDPR and risks of data breaches, enterprises find it difficult to depend solely on real data. Also, the time taken to collect real data and the cost of procuring it poses a challenge. Enterprises need to find better ways to collate and leverage data that helps them achieve their business goals. Take application or product testing for instance. It requires a huge amount of real-world data that may be difficult and time-consuming to procure. In finance, there is a lot of talk about how AI can help fight fraud. Getting sufficient data to train ML models to predict fraud (or anomalies) is challenging because fraudulent transactions aren't very common. Lastly, datasets that are made available for analysis might be imbalanced due to inaccurate class representation. All these reasons reinforce the need for generating synthetic data to resemble real-world data. It can be used to build and train ML models accurately. Create synthetic data that reflects important statistical properties of underlying real-world data. With synthetic data, enterprises can address uncertainties around the availability of real-word data. Recent developments in generative AI models and algorithms can potentially ensure accurate representation of real data in synthesized data. Generative AI models such as generative adversarial networks (GAN) are adept at discovering structures and patterns in a data set. These patterns can be used for creating synthetic data to overcome data shortages during AI/ML implementations. GANs are a powerful class of neural networks that are used for unsupervised learning. They are made up of a system of two competing neural network models, which compete and analyze, capture, and copy variations within a dataset. Data is wealth-high-quality synthetic data that eliminates the privacy constraints of real-world data is invaluable for any industry. From identity protection and anonymity in sensitive situations to helping remove biases during recruitment, generative AI has a lot of potential across industries. While synthetic data is less expensive than collecting real data, there are questions that enterprises need to address before adopting generative AI. It can be challenging to get an enterprise's stakeholders and business owners to collectively agree on the usage acceptance criteria of synthetic data. This data may reflect biases present in source data. Further exploratory data analysis will be needed to eliminate biases before generating synthetic data. Enterprise data maturity assessment models must be used to identify gaps in existing data and analytics programs to develop specific approaches for plugging them through synthetic data. Synthesized data may also fail to produce outliers of real-world data. However, based on the importance of outliers for a given business application, data scientists can treat the outliers separately. They could produce synthesized outlier data with generative AI to represent the actual data realistically. "Gartner estimates that by 2024, 60% of the data used for the development of AI and analytics projects will be synthetically generated." Streamlining logistics and transportation using AI As you like it Data and Analytics in Manufacturing: Overcoming Challenges TCS Datom™: Align your data, analytics, and AI strategy Synthetic data overcomes the challenges of dealing with real data's sensitivity and costs of acquiring it. Theme Font size Line height
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How machine learning operations can fortify AI/ML

Highlights On this page Automate automation Key challenges A phased approach MLOps is not DevOps Achieving excellence About the authors Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Mahesh Kshirsagar Dr Sanjeev Manchanda Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Data and Analytics / White Paper 4 MINS READ Mahesh Kshirsagar TCS Dr Sanjeev Manchanda Solution Architect, Business Transformation Group, TCS You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are looking for new ways to automate their AI and ML processes. With the widespread adoption of AI and ML worldwide, organizations have now run into a new challenge. A significant amount of manual effort goes into developing and delivering AI and ML solutions such as gathering and pre-processing data, developing iterative models, testing, and deploying models, as well as versioning and monitoring models. To reduce manual intervention and speed up implementation, organizations are looking at automating processes involved in creating AI and ML models. However, the journey to automated data extraction, pre-processing, model development, testing deployment, and monitoring is not an easy one. In this paper, we focus on the tools and best

practices that enterprises can use to test, deploy, maintain, and monitor AI and ML models in an automated manner, from development to production. From identifying problems to developing models, ML processes are highly iterative. ML processes consist of two stages. The first stage involves identifying problems or scenarios in which ML can help. This is where businesses look for ML use cases, identify data sources (to feed data into ML systems), and develop the right-fit algorithms. In the second stage, data engineers prepare data for ML model development using one or more algorithms and then perform iterative experimentation and testing. At present, many practitioners perform these activities manually, which is inefficient and prone to errors. MLOps addresses this by deploying, managing, and monitoring ML models in an automated manner. This improves the reliability and efficiency of ML models. MLOps implementation is growing and will continue to grow in the future. A survey indicated that 39% of enterprises are using MLOps tools, while 39% are looking forward to adopting them, and the remaining 22% are yet to adopt them for model serving. But how do enterprises ensure they get maximum value from their MLOps investments? To get the best results, enterprises need to adopt a phased approach to MLOps. Here are four key phases to get MLOps right for enterprises: Once deployed, the AI/ML models can learn through continuous supervised or unsupervised learning. This will help improve deployed models through incremental learning based on the latest data. If incremental learning is not possible, the models can be retrained using the entire training data. Why focus on building incremental learning capabilities? Because algorithms that support incremental learning perform better over time as compared to algorithms that support static learning. We need to bust the misconception that MLOps is a DevOps activity. Often, DevOps and MLOps are thought to be the same because they have a common goal: deploying software in the production environment. On one hand, DevOps involves automation of the software development lifecycle to provide continuous delivery of high-quality software. MLOps, on the other hand, deals with automating ML applications and workflows. Simply put, in MLOps, the deployed software also has an AI/ML component. This requires a special method of model development, comparison, management, and deployment that is not present in DevOps. An illustration listing the critical differences between MLOps and DevOps regarding applications, tools used, continuous integration/continuous deployment, version control, validation, and code vs. data management. The key aspects of DevOps include using traditional applications, standard libraries and use cases, building, testing, deploying and monitoring generic applications, managing the code-built version, unit test cases, and code. MLOps includes using AL/ML applications, a broad range of analytical tools and languages, building, finetuning, training, deploying, and monitoring applications based on AI/ML models, managing model versions and environment setup, model validations, code, dataset and notebook management. MLOps enables self-service in deployment and management of ML models and automated monitoring of ML processes. With MLOps, automated model testing, deployment, management, and monitoring is made possible. This means developers can focus solely on developing AI and ML solutions without worrying about testing or deployment. MLOps also automates process governance and plays a key role in bringing talent from several teams together to help enterprises achieve excellence with their AI/ML applications. Different roles that are

included in AI/ML development are supported by MLOps as described in the table below. An infographic depicting roles such as SMEs, data scientists, data engineers, software engineers, DevOps teams, model risk managers/ auditors, and ML architects. It also describes the various roles played in AI/ ML development to align business goals, problems, KPIs to measure the performance of models, build models and solutions, deliver data for ML systems, integrate AL/ML applications with organizational ecosystems, manage pipelines, help reduce risk and improve compliance with regulations, and develop enterprise-level AI/ML solutions. The infographic further explains the key contributions of MLOps including automation of testing, deployment, and monitoring of ML models, automation of deployment of ML models, checking data pipeline functionality, integrating model development and deployment, reporting to reduce risk and contributing to higher compliance, and enabling enterprises-level infrastructure and deployment efficiencies. Enterprises need to keep a few things in mind when adopting MLOps: When a phased approach is implemented well, MLOps can enhance efficiency, improve processes, and reduce development costs. Dimensions of AI: Righteous, Reliable, and Restrictive Role of Data Efficacy and Human Intervention in Explainable Making Business Decisions by Collaborative Intelligence Ensuring Safe, Secure and Sustainable AI Theme Font size Line height ========================

Six Steps for building a Hyper Personalization Engine

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across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Data and Analytics / White Paper Thomson Dcruz Senior Consultant and Analytics Solution Architect at Tata Consultancy Services. Venkat Baskaran Senior Consultant and Enterprise Architect at Tata Consultancy Services. You have these already downloaded We have sent you a copy of the report to your email again. Highlights Investment in hyper personalization is a must as customers expect personalized experiences across multiple channels. The COVID-19 pandemic has demonstrated a radical shift in customer behaviour towards digital channels. Today, customers expect personalized experiences across multiple channels and in every interaction with a brand. When it comes to personalization, traditional brick-and-mortar organizations are facing tough competition from non-traditional, digital-first, tech-savvy companies that place hyper personalization at the heart of their business strategy. Recommender systems have been in existence for a long time now and almost all organizations have invested in some sort of recommender system to boost their sales. However, in the era of digitalization, the business value of traditional recommender systems is not clear. To drive business value and continue to remain competitive in today's marketplace, organizations will need to invest in building hyper personalized recommendation strategies, which focus on improving customer experiences and building brand loyalty. Hyper personalization uses knowledge of individual customers to provide them with personalized recommendations, in the moments that matters, based on their position in the purchase funnel. It adds value to the customer experience and helps build a bond between a customer and the brand. Defining a common strategy for hyper personalization across all customer touchpoints and channels is key to building a unified hyper personalization engine. This will require organizations to work with key business stakeholders to first identify the business objectives and goals that the hyper personalization engine is intended to achieve. It will involve building agreement and alignment on critical aspects such as: Defining the business case for hyper personalization including: 1) Vision 2) Gaps in the current siloed solution 3) Capex and OpEx investments 4) Benefits and return on investment (RoI) Creating customer segments that should be targeted using hyper personalization. Defining personalization strategies to be used across various customer segments. Defining key customer journeys and moments in the customer's journey that should be hyper personalized. Charting a roadmap and project plan for deploying a unified hyper personalization engine within the organization. Identifying the metrics that would be used to track the success of the unified hyper personalization engine. Once the strategies are defined, it is important to define the steps for building a hyper personalized engine. We recommend six key steps for building a hyper personalized engine: Step 1: Build a customer data platform. Build a

customer data platform that creates a rich persona for each customer and provides input to the hyper personalization engine. Step 2: Build a feature store that enables reuse, reproducibility, and better performance. The feature store is an integral part of the unified hyper personalization engine. It provides the data inputs to the hyper personalization engine for generating recommendations. Building the Feature Store requires choosing the "Best Features for Personalization", which includes various types of data, such as user profiles, preferences, behaviors, interactions, and other relevant features. They enable higher reuse across use cases, consistent data quality, and better performance of personalization models. Step 3: Generate customer insights to be used for recommendation. Customer data platform enables companies to draw insights about the customer in terms of dynamic customer segmentation, customer churn, customer lifetime value, and customer sentiment analysis. These insights provide an enriched data input for the unified hyper personalization engine. The unified hyper personalization engine will use this data to offer recommendations that are relevant, engaging, and timely for each customer. The following strategies can be implemented for unknown and infrequent customers for whom there is less information to create personalized recommendations: 1) Provide global recommendations based on trending categories or frequently purchased products. 2) Leverage in-session behavioral data to decipher customer intent and use industry-leading contextual recommendation algorithms to provide tailored, real-time recommendations based on the customers' context Step 5: Build hyper personalized journey aware recommendations To ensure customers are always served relevant content, use filtering rules combined with machine learning models to identify and match the right experience to the right customer based on the knowledge about the customer. The filtering rules can use various criteria, such as customer preferences, behavior, context, location, device, and time. By using these criteria, the hyper personalization engine can generate recommendations that are aware of the customer journey and tailor them to each stage and goal. For example, a new customer who is browsing for a product may receive recommendations for similar or complementary products, while a frequent high valued customer who is ready to make a purchase may receive additional curated product recommendations based on their purchase history, in-session browsing behavior, preferences, and location. These recommendations may also be clubbed with additional discounts or free shipping. Step 6: Build personalized customer experience Build & deploy personalized and relevant UI across all channels to provide a delightful, customized experience for each customer. Leverage comprehensive testing experiments, to tailor the best experience for every customer based on their context and history. These tests can be used for testing new ideas or hypotheses, learning from customer feedback and improving individual customer experience over time. To build in-house or buy out-of-the-box products: Things to keep in mind The need to quickly enable hyper personalization has led to the rise of several hyper personalization engines in the marketplace. Many of these products offer a broad range of personalization capabilities. On the other hand, however, these products may not cater to specific industries (for instance, fashion, grocery, or furniture) and they tend to use a "one size fits all" approach toward personalization. A good approach would be to invest in building a hybrid solution, which integrates in-house solutions with out-of-the-box

products that provide niche capabilities. Here are a few things that should be kept in mind while finalizing the technology strategy for personalization: Uniqueness: Examine whether product enable personalization use cases that are unique to the organization's business context and industry Capabilities: Evaluate if products address hard to build niche capabilities (such as personalized search) Speed to market: Estimate the complexity of integrations required for the product to work with multiple channels and touchpoints within the organization Multi-channel: Examine if products provide personalization across multiple channels and touchpoints within the organization Customization: Assess product capabilities to import customized ML models Models used: Consider whether products feature advanced personalization techniques leveraging reinforcement learning, deep learning etc. Lock in: Evaluate the risks of vendor lock-in which can limit the organizations personalization capabilities, flexibility and expose them to service quality issues, price increases, or vendor failure External data: Evaluate if products provide the capability to integrate social and external data to generate a rich customer profile Cost: Consider whether it is more cost-effective to buy a particular solution or build it in-house. Hyper personalization presents a new paradigm in the way organizations can improve customer experience across all touchpoints and channels. The implementation of hyper personalization is a route to assured success for organizations to increase customer satisfaction, loyalty, and retention. To successfully implement hyper personalization, organizations first need to define clear strategy & roadmap that aligns with their business goals, approach, and outcomes. Without a clear strategy in place, organizations may struggle to effectively implement hyper personalization and may not realize its full potential. From an implementation perspective, organizations can choose to build their own solution, buy a product from a third-party provider, or use a hybrid approach (best approach) which combines in-house solutions with out-of-the-box products. The hybrid approach allows customization and optimization according to specific business needs and preferences. Finally, the ability to be successful also largely depends on the organizations ability to know their end customers better and be there for them in the moments that matter. Organizations need to collect relevant and reliable data from various sources and leverage technology innovations in the AI & ML space to analyze the data and generate personalized and timely offers and messages for customers. How Master Data Management Enables Resilient Supply Chains What Master Data Management Can Do for Your Business A Guide to Artificial Intelligence Governance Best Practices Accelerating AI/ML Implementation with Machine Learning Operations Looking to turn data into value? Theme Font size Line height
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Build trust with robust artificial intelligence governance

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AI Governance Lifecycle John M Thomas Data and Analytics / White Paper 6 MINS READ John M Thomas Consulting Partner,TCS You have these already downloaded We have sent you a copy of the report to your email again. The need for AI governance has never been stronger as technology permeates all walks of business and everyday life. AI seems to have taken the world by storm with organizations adopting the technology at a rapid pace. However, when it comes to AI governance, there is still a long way to go. There are some exceptions of course, especially when AI models are deployed by businesses that come under heavy regulatory scrutiny, such as lending or healthcare. However, in general, even as businesses build their AI capabilities, governance has not really been a top priority. AI governance must go hand in hand with AI adoption. Companies today use AI to make decisions that impact their customers and employees, to measure key metrics like profitability and customer satisfaction, and to drive innovation and growth. Clearly, AI impacts an organization's bottom line and brand. To build trust and get full value from AI investments, organizations need a comprehensive governance framework spanning every stage of AI development and usage. Organizational objectives may be contextual, but there are common foundational purposes of AI governance that enterprises can consider. On a high level, AI governance should: Drive organizational alignment: AI as a technology is versatile and has many use cases. However, care should be exercised to

ensure that the selected use cases align with the organization's core values, goals, and overall strategy. Ensure ethical AI: Biased data or human bias in labeling data could lead to AI model bias. These biases may, in turn, affect how a customer or employee is treated by an AI-powered process. For instance, consider an AI model for decisioning on consumer loan applications. Let's assume that the model was trained using both prior loan application data and decisions taken by underwriters on loan application approval and rejection. If there were biases toward a specific demographic in any past decisions, the model would internalize the same bias again. Robust governance will help businesses exercise reasonable caution. This will ensure that any ethical gaps are mitigated throughout the AI life cycle and that all conclusions made by AI models are fair. Establish transparency: AI models often end up becoming black boxes. How the models reach a certain conclusion or what factors are taken into consideration during this are often not widely understood and reviewed. AI governance should provide guidelines and supervision to ensure transparency and explainability of AI models prior to deployment. This may include documentation that captures the internal workings of an AI model (such as feature importance) and reviews by business, legal, and compliance stakeholders. This way, key stakeholders can determine how a model arrived at a certain conclusion or why it made a certain recommendation. Drive risk management: Once transparency is established, financial, operational, and security risks can be evaluated and managed by the respective stakeholders. For example, the business can weigh in on how well exceptions are handled or data stewards could assess data usage permissibility. There will be other mandates for AI governance too depending on the type of organization and its goals. The governance function might not be able to directly act on all these fronts. However, it can define processes, standards, and best practices for AI development and oversee adherence to the same. Let's look at how organizations can start their AI governance journey Essentials for setting up an effective AI governance foundation First, sufficient funding needs to be made available for AI governance. The capital required will vary depending on the volume and nature of AI use cases. As a thumb rule, organizations can expect to spend approximately 5–10% of their AI budget on governance. This includes resource costs and documentation costs toward AI model design or to support governance processes for a particular use case. Second, it is necessary to establish a cross-functional AI governance committee that includes business, technical, legal, and risk experts. This committee should define policies and guidelines for AI development as well as oversee the AI application life cycle. Depending on the organization size and level of AI adoption, the AI governance committee could either be standalone or be embedded within the data governance function. For AI development process and approach, the committee can define the controls to be put in place by type, risk, or complexity of the AI application. For instance, it can define the type of applications where augmented AI can be used for risk mitigation. In this approach, AI applications are implemented with human oversight to ensure accuracy and corrections as appropriate. The corrections made through human intervention then become the basis for further AI model improvement. Another key area that needs attention is the data that is being used as input for AI applications. Traditionally, when developing AI models, the focus has been on the modeling approach. Today, data-centric AI development, or carefully curating the data used for building

models for accuracy and fairness, is emerging as a key theme. Governance should ensure that the data used in AI development is unbiased, representative of the population, and of the highest quality. Standards must be defined for sourcing, preparing, and labeling data that is used for training AI models.   AI governance shares some common traits with data governance, but there are differences that businesses need to keep in mind. In some enterprises, AI governance could function as a sub-component of data governance. In other situations, it may need specialized skills to warrant a standalone design. At least in the initial stages, it may make more sense to augment existing data governance with the right capabilities and expertise to oversee AI development and deployment. Once this is done, the organization can begin defining the policies, processes, and standards to serve as the foundation for its AI governance. When left unchecked, the outcomes of AI deployment may not always be favorable. To minimize the risks and maximize the benefits of AI, choosing use cases that align with the organization's overall business needs is key. Transparency and security built into AI models will also result in better adoption and user trust. How Master Data Management Enables Resilient Supply Chains What Master Data Management Can Do for Your Business Hyper personalization engine: Build or buy? Accelerating AI/ML Implementation with Machine Learning Operations Theme Font size Line height =====================

How master data is foundational to business transformation

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we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Data and Analytics / White Paper 4 MINS READ Ramachandran Mahesh Iyer Consulting Partner, Data and Analytics, TCS You have these already downloaded We have sent you a copy of the report to your email again. Highlights Many companies are yet to address the underlying quality of the data they use. Data makes the digital world we live in go round, empowering consumers while enabling companies to offer the anytime, anywhere services customers have come to expect today. Think of how access to real-time data via the many online retail platforms allows consumers to check product availability, compare prices, or hunt for the best deals on their phone without going anywhere. Or how they make their purchasing decisions be it for grocery items or the latest gadgets based on product ratings on these sites and social opinions. If data is helping consumers make smarter decisions, it's also enabling companies to get closer to them. Companies are using data to gain a deeper understanding of customers, their preferences and purchase patterns; for micro-segmentation of users; and to find new ways of enhancing customer experience. Airline companies for instance, are using real-time data captured at kiosks in airports to offer customized services like instant upgrades based on customer profiles. While companies are leveraging data and technologies such as AI to transform their business models and drive growth, many are yet to address the underlying quality of the data itself. As a result, much time and effort are spent on manual corrections, data reconciliation, and improving data accuracy. Inconsistent and inaccurate data impedes business innovation and transformation. It takes a while for transformative ideas to be accepted and adopted across industries. The speed at which these innovations can be adopted to meet emerging market needs depends on the supporting technologies that are, in turn, completely dependent on the underlying quality of data. MDM serves as the cornerstone of successful business transformation. As companies increasingly embrace cloud, AI/ML, data virtualization, and advanced analytics to drive business transformation, it becomes even more critical for solutions powered by these new technologies to be integrated to core enterprise master data assets. This is where MDM comes in. It can play a strategic role in driving business outcomes for enterprises. To understand how, let's look at a leading engine manufacturer. It decided to adopt an innovative, IoT-based method to analyze large sets of engine-generated sensor data. By analyzing sensor data, the manufacturer wanted to gauge engine performance over time and predict whether the engine required maintenance. However, the company didn't have a 360-degree view of the engine. It also lacked an empirical context for detailed engine specification, customer contract for which the engine was utilized, and airplanes which could potentially use the engine. The unavailability of context-sensitive 'master' information and the inability to map the enormous sets of sensor data to such a master version of truth proved to be the missing link to getting maximum mileage from the project.

In another example, a leading global retailer was launching a new marketing campaign to analyze customer sentiment for specific products. However, the retailer faced two major obstacles. First, it didn't have specific details on each customer. Second, in cases where customer feedback was gathered, it was unable to link the customer sentiment to the respective product and product category. These were challenges that could have been easily overcome if a master data of customers and products was in place and data from here could have been easily mapped to the new findings. MDM serves as a fundamental component and key driver for successful business transformation. As shown in figure 1, it serves as a trusted source of high-quality data for ERP transformation, IoT-led predictive maintenance, mass personalization, and more. Figure 1: MDM: A trusted source for enterprise data   Full screen MDM plays an indispensable role in transforming business models, products, and services to reimagine customer experience.   Take, for instance, a leading global retailer with a huge brick-and-mortar presence and rapidly increasing web presence that wants to 'know' its customers. Among other things, the retailer wants to gain a holistic understanding of the customer—who the customer is, whether the person prefers online shopping, a particular store, or product; and what the person's average monthly spend is. It wants to use this information to launch a personalized campaign, offering products to the customer based on past buying behavior, regardless of which channel the person uses. The data that holds the information the company is looking for is distributed across multiple systems. The retailer can leverage a highly scalable environment similar to a data lake, to tap terabytes of data for actionable insights. As shown in figure 2, it can implement match and merge principles to resolve the challenge of similar customer names, link customers to one or more locations, and analyze purchase history, likes and dislikes, and spending habits. The retailer can also gather customer feedback on social media. Figure 2: Snapshot of a customer-specific retail campaign where MDM is used to resolve challenges. Full Screen The key to mastering enterprise data management lies in understanding where the data resides within and outside the enterprise. Often, the data is embedded within the enterprise's critical operational systems and continuously passed back and forth as part of operational processes. Companies looking to master data management need to ask themselves some key questions: Companies need to develop a framework that focuses on people, processes, and technologies. Most functions and processes like manufacturing, inventory management, digital marketing, human resource management, and finance have software applications and systems with designated owners and supporting teams. Others have entire departments managing applications and systems, and particularly focused on specific domains. When it comes to MDM, typically, there are no designated owners and the data managed or that needs to be managed is scattered across applications and systems in the organization. For instance, data around an item that is manufactured and sold originates in several sources and systems in the organization and often continues to be maintained in disparate, siloed systems. It's no surprise then that the same item is referred to differently across systems and ends up with multiple versions of data. The result: rampant duplication and inaccuracy of data, and high risk of marketing campaigns built on such data not reaching the right customers. Companies need to approach MDM holistically and develop a framework that addresses these concerns at the organizational level. One

that focuses on people, processes, and technology. Here are a few recommended actions for mid to large-sized organizations that have an abundance of data and are looking to drive effective business transformation using the data: It's a journey of charting the path to greater value from business transformation initiatives. MDM serves as the bedrock for all enterprise-level data management systems. The health and maturity of an MDM solution directly influences the overall quality of data across critical business functions. Enterprises all over the world have embraced sophisticated data mastering techniques for multiple domains of data such as products, customers, trading partners, and fixed assets. MDM is not an IT project that concludes with the simple installation of a smart system. Companies that realize this and embrace MDM as a journey of continually improving the overall quality of data will be charting the path to greater value from its business transformation efforts. Boost your business performance with data and analytics Modernize your data centers with TCS Daezmo™ Alstom bets on data for future growth Data maturity requires a data-driven mindset Theme Font size Line height
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How master data management enables resilient supply chains

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ignore. Poor data maintenance can lead to invoice and delivery errors, loss of business and revenue to competitors, delayed time to market, and brand dilution. Integrating accurate master and transactional data from a data ecosystem provider will facilitate the required quality analytics to take timely decisions for mitigating risks. Another aspect is that a wide variety of technology systems support supply chains that require a solid foundation of accurate and consistent master data to optimize and improve the processes. These include enterprise resource planning, transportation management systems, supply chain planning, warehouse management systems, and customer relationship management systems, as shown in Figure 1. A figure depicting the supply chain conceptual master data model by organization, item, location, and assets. Consolidate data from various sources to define the golden copy—an accurate, trusted version of the record and manage it consistently within the enterprise landscape. An MDM solution is the way to go, making the master data more responsive to change and the data management processes efficient. MDM enforces the discipline of 'manage it right from now on' with business rules, while also progressively improving the quality of pre-existing data. Supply chains have their own nuances for MDM and require strong capabilities like normalization, match-merge, and cleansing for the corporate master data. MDM provides a platform for enabling these capabilities with business rules to enforce the quality of master data across managed domains over a period of time. These supply chain environments have critical MDM domains such as organizations, business partners, items, locations, assets, and transportation. A simplified view of the typical conceptual master data model for supply chain environments with domains, entities, and their relationships are shown in Figure 2. This model can be adopted and enhanced as per organizational needs. A figure illustrating the master data management (MDM) architecture listing data domains, key features, and UX. It also depicts the connection between the input key sources such as ERP, CRM, SRM, partner systems, and the third party and the target systems such as regional, corporate, NextGen, banking and payments, and future applications. With MDM, enterprises can author and master important data attributes that include the following: Addresses Supplier risk ratings Data universal number system (DUNS) Customer banking information and supplier information Manufacturer part numbers Applicable unit of measurement (UOM), aliases, Country of origin Sustainability ratings Regulatory compliance Enterprises that optimize MDM for their supply chains can realize several benefits. They can: Aid decision making with high quality data-based analytics to reduce data maintenance and costs. Improve transportation planning, customer satisfaction, and crisis readiness and management. Reduce invoice and delivery errors, interest expenses, and improve retention and corporate-level reporting. Lower the overall purchasing costs from using accurate vendor master data and offer better opportunities to vendors and supply chain partners for price negotiations. Categorize data better to improve sales teams' abilities to cross or up-sell for increased sales. At the outset, get a clear picture of the enterprise data available. Multiple versions of data across suppliers, business partners, products, employees, locations, and assets may exist. When crafting the MDM strategy for supply chain management, enterprises need to: Get business buy-in: Ensure business stakeholders and their needs drive MDM projects, and not IT. If not, it will become just another database that needs

to be synchronized. Think long-term and embrace agile implementation: Have a long-term MDM strategy but implement it in agile steps. Implement strict data governance policies and procedures: Ensure that appropriate organizational change management processes are in place. Carefully organize master data for consumption through planning and reporting systems: Poor quality data can pose multiple problems and incur high associated costs. With an MDM strategy, master data will be more responsive to change and data management processes, making them more efficient. It would also help in maintaining a single version of truth for all the implemented master data objects in supply chains. Moreover, a business team, once trained, can easily define its own rules for maintaining the integrity of the data. MDM has the potential to improve business processes with a disciplined approach to handling master data. Boost your business performance with data and analytics Modernize your data centers with TCS Daezmo™ Alstom bets on data for future growth Data Adoption and Sanitization Using Machine Learning Looking to turn data into value? Theme Font size Line height =====================

TCS Datom™: Align your data, analytics, and AI strategy

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interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. TCS Datom helps orchestrate your data initiatives and drives smarter decision making. You have these already downloaded We have sent you a copy of the report to your email again. HIGHLIGHTS Deconstruct and transform business challenges into value story maps. Driving business growth while being resilient requires digital reimagination of business models and improvement in data and analytics maturity. TCS Datom offers a contextual array of digitalized methods that help deconstruct business challenges and identify the right-fit analytics Interventions for them. It then evaluates an organization's data and analytics capabilities based on five levels—siloed, simplified, scaled, synergized, and self-optimized to chalk out a best-fit journey across the maturity levels and towards tangible business impact. Drive accelerated business outcomes with TCS Datom. TCS Datom helps define a holistic data and analytics strategy and provides a clear line of sight between the goals and the potential business impact. The solution includes: TCS Datom: an advisory framework to develop the right data, analytics, and AI strategy aligned to your business goals.   An illustration depicting how TCS DatomTM accelerates business outcomes through proven analytical interventions, baseline maturity, benchmark data, and analytics ecosystem and provides strategic service offerings to strengthen foundational capabilities. Turning data into strategic advantage Holistic strategies that help elevate the impact of data and analytics on business outcomes. Vision alignment across business capabilities and technology adoption drives stakeholder buy-in and smooth execution focused on early benefit materialization. Competency alignment with data and analytics roadmap to help organizations reap maximum benefit from their data resources. Visibility into program health to establish a quantified maturity benchmark that allows tracking of data and analytics portfolio progress in a measurable format. Accelerated outcomes by leveraging offerings across business case modeling, AI capabilities, ecosystem modernization and cloudification, and KPI rationalization, among others. The TCS Advantage Customer-centricity for optimal business success Collaborate with us and leverage: Derive a Continuous Value Stream for Data Data maturity requires a data-driven mindset How Australian organizations measure up for data maturity Why a strong data foundation is critical to AI success Looking to turn data into value? Theme Font size Line height =====================

Monetize cross-functional enterprise data with TCS Dexam™

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TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Democratize, monetize, and commercialize enterprise data You have these already downloaded We have sent you a copy of the report to your email again. Enterprises must explore new opportunities to monetize data through improved data exchange that returns higher business value. Today, extracting value from enterprise and ecosystem data is a key challenge for many enterprises. Lack of valuable insights impedes decision making at a tactical and strategic level, and could also impact overall business. Often, data resides in silos. Poor governance combined with potential data security, privacy, and legal issues could erode customer confidence. This may lead to branding and financial pitfalls too.   TCS Dexam is a data exchange and marketplace that works within and across enterprises. The platform provides a secure framework for enterprises and their ecosystem partners to exchange, monetize, and commercialize data while managing privacy and consent. Key features of the solution are: TCS Dexam breaks cross-functional boundaries and enables controlled data exchange and improved data governance across the enterprise ecosystem.   A figure depicting how TCS DexamTM improves data governance through data monetization, data commercialization, and data democratization. Exponential value through seamless data exchange. We maximize business value through data-driven insights with TCS Dexam—a solution that powers data management and exchange across the ecosystem. We help enterprises leverage the following key differentiators: Extensive industry experience Research and innovation Efficient Data Democratization with Data Marketplace Platform Digital Marketplace: Enabling Data Democratization and Monetization Data

Commercialization: Privacy & Compliance Challenges Enhance the Business Value of Analytics with Enterprise Data Marketplace Looking to turn data into value? Theme Font size Line height =====================

Driving AI innovation with TCS Business Analytics Offering

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Offering is a data and analytics framework that leverages AI to build innovative business offerings across non-CIO functions in an enterprise. With artificial intelligence, machine learning, natural language processing, knowledge representation, and immersive analytics, the framework provides smart capabilities for personalized customer experiences and quicker time-to-value. The offering includes: Customer analytics Sales and marketing analytics Workforce analytics Sustainability analytics Inspection-as-a-service TCS Business Analytics Solutions is a framework that addresses the context and priority of different functions in an enterprise. Get a 360-degree view of the customer. What it does Customer analytics develops a unified view by analyzing and associating customer interactions across multiple touchpoints with existing insights, enabling better customer service and sustained customer loyalty. It focuses on knowledge-based consulting and utilizes our deep domain knowledge, AI-ML-based accelerators, and solution frameworks such as PredictCX—a complete digital solution with in-built customizations to improve customer experience. Benefit Enhances customer tenure by about 10%, increases customer loyalty, and improves lifetime value. Hyper-personalized offers powered by data-driven interventions. What it does Sales and marketing analytics focuses on hyper personalization through a dynamic recommendation engine enabling higher return on marketing investments. It leverages our cross-industry functional and technical expertise to help marketing functions through Next Best Action and other solutions. Our presence in industries such as banking, financial services and insurance, retail, and media helps deepen customer relationships and foster long-term loyalty. Benefit Delivers 40–60% increase in sales as well as 60–80% lower marketing costs and improved conversions with the elimination of duplicate campaigns and redundant messaging. Transform workforce experience, productivity, empowerment, and well-being using decision sciences. What it does Workforce analytics employs AI-enabled analytics solutions to complement existing systems and improve talent experience, productivity, and well-being. It builds on our proprietary products and services along with niche partner products, TCS Research and Innovation, and domain and technology accelerators. Benefit Delivers a 50% reduction in hiring efforts for internal mobility and up to 50% improved learning agility with hyper-personalized learning content. Sustainable performance balanced with business value generation. What it does Sustainability analytics addresses value chain analytics, data and circular marketplaces, and sustainability disclosures. It conceives sustainable solutions using an extensive partner ecosystem. Our skilled consultants backed by industry-tested best practices and data and analytics-centric platforms and solutions add value to your business. Benefit Unlocks higher economic, environmental, and social value culminating in higher brand value. Inspection of critical services for citizens. What it does Inspection-as-a-service uses an AI-powered engine to put together data from thousands of devices such as closed-circuit cameras and sensors to allow monitoring at a large scale and unbiased, rapid, and traceable reporting. Its use cases range from inspecting school sanitation to hazardous waste disposal and enforcing law and order. All this on a fast, secure, and reliable cloud environment. Benefit Leverages its potential to be a change agent for growth and prosperity to enhance environmental, social, and corporate governance, and to grow a community's social, natural,and human capital. lower marketing costs, improved conversions by eliminating redundant

campaigns. improved sales with a framework-driven prospect list for multiple channels. longer customer tenure—improves customer loyalty and lifetime value. Retaining top talent with intelligent workforce management Taking a responsible route to enterprise AI adoption Ethical AI: Building a Strong Foundation for Today and the Future Maximizing the AI Potential with a 12-C Framework Looking to turn data into value? Theme Font size Line height =====================

Modernize your data centers with TCS Daezmo™

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real-time and batch data transactions. Plus, business users are looking for speed, flexibility, quality, and ease of discovery. A unified data platform with capabilities for cognitive analytics, real-time processing, and consumption of actionable insights is one of the key requirements of mining data. TCS Daezmo is a holistic suite that enables data and analytics modernization by combining approaches, methodologies, and Machine First™ accelerators. Next-gen data estate for maximizing value. TCS Daezmo is a comprehensive service offering that covers data platform implementation for data and AI-driven modern enterprises. The offering handles data lake and warehouse creation on modern platforms like Amazon Web Services (AWS), Microsoft Azure, Google and Snowflake; legacy data warehouse migration to the cloud for AI consumption; data mastering and governance and data apps for new data-driven business models. The offering combines solutions with field-proven processes and methodologies for enterprise modernization. It provides the following capabilities: 1. Data democratization: Enables data strategy, design, operations, and governance. 2. Field-proven methodologies: Provides a seven-step process framework for all major target platforms. 3. Patented Machine First™ approaches for enterprise AI readiness and data consumption. These include: 1) Source data warehouse analysis 2) Historical data migration to cloud 3) Data warehouse objects conversion to cloud 4) Augmented data management for cleaner data 5) Data platform observability solution 4. Platform-agnostic implementation: Leverages proven architecture and optimum design patterns for scalable applications on the target platform. 5. User onboarding support: Offers support services for new data platform adoption. 6. Vectorization at scale: Accelerates the bulk vectorization of an enterprise's unstructured content for plugging into models for respective generative AI (GenAI) use cases. Partner with us on your data and analytics estate modernization journey. Rapid implementation: Cut down modernization timelines with AI-driven accelerators. Expansive source coverage: Integrate a range of data sources (enterprise, machine, social, open, ecosystem), and data types (structured, semi-structured, unstructured, master, transactional, streaming, and batch data). Superior AI readiness: Strengthen data capabilities with greater coverage, sophisticated analytics, and cost-optimized open-source adoption. TCS Daezmo is characterized by several key differentiators. A network of partners: We partner with industry leaders such as Amazon, Google, Microsoft, IBM, Talend, MarkLogic, Collibra, Informatica, and Tableau among others, for joint go-to-market and engineering capabilities. Global experience across verticals: Our extensive expertise and contextual knowledge helps clients across industries modernize their data estate. Realization of business use cases: Our solution framework, agile execution, and culture of innovation ensures desired business value for our customers. Transform-as-you-grow approach: Ensures quicker time-to-revenue with lower risks to business. Data office: We consult with our customers on designing a data office to create a data-driven culture that integrates business and IT teams. What Master Data Management Can Do for Your Business How Master Data Management Enables Resilient Supply Chains Overcoming Data Quality Challenges with Augmented Data Management Bringing Life to Data and Analytics with Better Visualization Looking to turn data into value? Theme Font size Line height
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Sales and Marketing Analytics

Services Harness the Power of Data and Analytics for better Business Outcomes Highlights In this article Challenge Solution Benefits Related reading Let's make the cloud connect Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. As enterprises look to transforming their sales and marketing portfolios, customer engagement can be affected due to misdirected targeting efforts and duplication in marketing campaigns. This can result in unnecessary marketing costs because the same customer pool is being targeted multiple times. Further, the absence of a unified customer view and aligned multi-channel marketing efforts can decrease conversion rates and lead to high customer churn. Customers also become disengaged when targeted for the wrong product, reducing customer loyalty, and making the campaign less effective. TCS Sales and Marketing Analytics enable hyper-personalized customer experiences with marketing channel optimization through digital adoption and multi-channel contextual marketing. The solution facilitates data-driven analytical interventions across customer life cycle and ensures customer retention and low churn rate. Key features include: With TCS' Sales and Marketing Analytics, enterprises can benefit from: TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption TCS Datom™: Enhancing data & analytics

capabilities Enterprise innovation with TCS Business Analytics Solutions TCS Dexam: Data Democratization & Monetization for Greater Value No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height
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Safely unlock AI's potential with responsible AI services

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increased productivity and other benefits. However, to identify and mitigate the risks associated with GenAI and AI in general, businesses need to implement AI-based solutions responsibly—with transparency, explainability, and in an unbiased and trustworthy manner. While there have been conversations around ethical AI, frameworks for responsible AI and AI usage are still evolving. Enterprises have not really explored or invested in responsible AI—until now. Our proven framework for responsible AI implementation can help enterprises unleash the potential of AI and GenAI while ensuring responsible usage across their organizations. Solution We offer responsible AI services for every stage of AI adoption. We have a comprehensive portfolio of responsible AI services covering the entire lifecycle of AI adoption—from conceptualization of a solution to implementation to operations. Our services for responsible AI are built on a framework of five core tenets—secure, accountable, fair, transparent, and identity preserving—with metrics mapped to each of these tenets. By leveraging these services, enterprises can get the best of out of AI, safely and responsibly. Our curated responsible AI offerings are aimed at driving purpose-driven, sustainable outcomes and include: Responsible AI adoption strategy consulting: Working closely with CXOs and AI leaders at organizations, we define responsible AI principles and implementation strategies, identify or develop responsible AI frameworks and tools, create plans to implement AI responsibly, and establish governance models as well as approaches for the operationalization of AI-based solutions. Responsible AI assessment: No matter where they are on their AI or GenAI journey— whether they are just starting out or have already implemented a solution— we help enterprises assess their maturity level for these technologies by scoring them against relevant metrics, and identify and mitigate potential risks and biases. Outputs from AI that may not align with an organization's or jurisdiction's requirements, policies, or ethical guidelines and results that foster existing biases are real risks. Using TCS' patented solutions and services along with those of leading cloud service providers and our proven framework, we help mitigate risks and make enterprises compliant and AI and GenAI-ready. Responsible AI design and implementation: Using our responsible AI framework and capabilities from both TCS and the leading cloud service providers we partner with, we embed ethical AI into the fabric of the AI systems being developed. Through this service, we help address challenges around security, privacy, bias, fairness, accountability, and explainability in already developed AI and GenAI-based solutions. At each phase of adoption—conceptualization, design, build, testing, and deployment —we ensure that models comply with the tenets of our framework, setting the stage for success with AI. Throughout, our subject matter experts work closely with companies' GRC (governance, risk, and compliance), security, and AI teams to ensure that the implementation of AI and GenAI-powered solutions meet responsible AI principles and comply with regulations. Benefits Unlock the power of AI safely. Our services help enterprises address the many challenges that come with AI-based solutions. With us, they can: Ensure responsible adoption of AI with clearly identified risks and mitigations. Ensure AI is used solely for the intended purpose, and outcomes that may not align with an organization's policies or ethical guidelines are checked. Deploy robust security and privacy controls to prevent unauthorized or unintended use. Adhere to lawful, ethical, and social responsibilities. Comply with country-specific laws and guidelines related to

AI-based solutions. Enable continuous monitoring and alignment of AI-based solutions to enterprise goals. The TCS Advantage Get an edge with our rich pool of AI talent and strong partnerships. A partnership with us comes with the following advantages: Deep expertise: TCS has decades of experience in researching and developing AI-based solutions to solve complex business problems. Our Research and Innovation unit builds cutting-edge, customized AI models and solutions for customers across the globe. Scale and skilled resources: TCS is the second largest IT services company in the world, with over 600,000 people. We have a large workforce of AI-skilled associates to support enterprises across geographies in their AI transformations. Strong partnerships: TCS has strong partnerships with all the major players in the AI ecosystem. Through our partnerships, we enable innovative solutions for enterprises. TCS AI for Business Study Key Findings GenAI: Build or buy? Why are futurists optimistic about AI's impact on work? How Generative AI is Revolutionizing the Enterprise Landscape Learn how we can help with the next step of your generative AI journey. Theme Font size Line height ======================

Ascential Stays on Course Amid Pandemic Churn

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walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. UK-based specialist information, data & insights co moves to 100% remote working in 3 days, completes mid-year closing, runs finance ops without a glitch You have these already downloaded We have sent you a copy of the report to your email again. Ascential, a specialist information, data and insights company that enables smart decision-making for the world's most ambitious businesses, was confronted with a challenge when the COVID-19 crisis began to intensify in March 2020. The timing of the pandemic coincided with the global company's quarterly and, subsequently, half-year closure activities. Ascential was under pressure to ensure its business continuity as countries began going into lockdown. The very nature of lockdown had necessitated an immediate need for timely and accurate industry insights and forecasts in digital commerce, given the sudden change in the marketplace and in consumption patterns. Against the backdrop of the pandemic, Ascential has played an important role offering such insights, anticipating trends, and creating competitive advantage for its customers. TCS has been Ascential's operations and technology partner for a decade. In the first week of March 2020, even before COVID-19 was declared a pandemic, TCS engaged with Ascential and started planning and identifying possible risks in financial operations due to the evolving global crisis. A dedicated, agile team was set up to engage with the Ascential team on potential risks, and to have all necessary approvals in place. Moving to a Remote Work Environment With the situation worsening across the globe by mid-March and the Indian government deciding to suspend international flights, TCS and Ascential decided to initiate remote working through Secure Borderless Workspaces (SBWS™). SBWS is TCS' dedicated and exclusive process module to set up remote working. A strategy was established overnight and all prerequisites to set up remote work IT infrastructure were put in place. This early move helped the TCS team manage Ascential's financial quarterly close in March. A delay in applying remote business continuity techniques, could have impacted Ascential's mid-year closing in June, as well as its end customers. India went into lockdown on March 23, 2020; three days later, TCS' team for Ascential was 100% SBWS-ready. SBWS was enabled for 30 associates within just two days. The team ensured customer and supplier calls didn't get missed by enabling voice support with call forwarding, and all project-specific deadlines were met. Knowledge Transfer Projects Stay on Track Ascential and TCS had been working to transition market research and analytics work for WGSN – Ascential's global leading authority on consumer and design trends. The initial plan to roll out the knowledge transfer (KT) was now at risk due to global and domestic travel restrictions. TCS and Ascential had to re-design the transition plan and the KT strategy to enable the team to perform the transition remotely using an SBWS™ plan specifically designed for Ascential. The KT was successfully carried out remotely in a secure, virtual environment. As businesses worldwide hit a reset against the backdrop of the pandemic, information, data and insights will have a key role to play in the decisions that will shape the future of industry and commerce. To this end, Ascential's growth and transformation story stays on course, as the company maintains its digital focus to ensure that the information it provides continues to fuel ideation in the post-pandemic global marketplace. Register for our email newsletter to get the freshest takes, straight to your

inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. ======================

Tata Chemicals boosts plant operations with a digital twin

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sixth-largest producer of sodium bicarbonate. The chemical major was seeing increased pricing pressure due to the expanding soda ash market. To stay competitive and enhance operational excellence, TCL began its digital journey with TCS. A crucial step in determining soda ash yield is carbonation during which any process variation would result in a lower yield. Even with advanced control mechanisms, the process was complicated. Manually analyzing carbonation process data and taking immediate action was challenging. What's more, when running at less-than-ideal efficiency, TCL's boilers consumed more fuel. Reducing process variability and increasing output critically depended on the power plant's performance and dependability. An analysis of six months' operational data from the carbonation towers and high-pressure boilers revealed that excessive process variance caused efficiency and yield loss. TCL was looking for ways to boost its productivity. The carbonation towers' efficiency was 67.8%. TCL set a target of 70%, as every 1% increase in yield would result in an annual margin of $400,000. The plant's data spanning over 32,000 sensors was stored in decision support systems (DCS) that gave operators a unified view of the plant's operations. While the DCS stored historical data of a few months, it needed data on operating information of equipment that went back 12–18 months. This disparity in data made it challenging for plant operators to take accurate decisions. TCS implemented a digital twin for TCL's carbonation towers and boilers for greater efficiency and data-led insights. TCS helped TCL set up the historical data and implement a data historian (a database that collects and stores time-series data from various sources). Concurrently, a discovery value assessment (DVA) was carried out for the carbonation towers and boilers at the company's Mithapur plant. TCS deployed a digital twin for TCL's carbonation towers and boilers and chose three towers and two boilers for the pilot, which could subsequently be scaled up. The DVA generated internal momentum and drove the requirement to improve key performance indicators and monetary savings. The digital twin increased the boiler efficiency at the power plant. This AI-driven system generated real-time set points, allowing operators to adjust and boost boiler efficiency. The implementation was completed for the two boilers and provided insights to lower the rise in boiler stack temperature and cut fuel consumption. This allowed plant operators to keep a high steam-to-fuel ratio. With the digital twin, plant operators could now ensure that the carbonation towers operated efficiently. They could precisely determine which parameters needed to be adjusted and to what extent. A cross-functional team including boiler experts and chemical engineers adept at operating processing facilities delivered on this project. TCL's employees were also given on-site training on the implemented systems and processes. Boosting efficiency in plant operations with digital twin technology By partnering with TCS, TCL could realize the following benefits: $600,000 in cost savings annually by implementing digital twins for the carbonation towers and boilers. Increased average yield, relying on AI-led actionable insights that increased process consistency and significant reduction in standard deviation. As R Mukundan, MD, Tata Chemicals Limited, puts it, "Today, TCL's operators leverage digital technology to improve safety, operational efficiency, and drive excellence. This program could not have come at a better time as it helped us through the Covid-19 lockdown phase. It helped us manage operations effectively and match the market demand without impacting efficiency." Full compliments to the Mithapur and TCS

teams for weaving a digital transformation plan and implementing it in a way that a traditional manufacturing process of over seven decades has been transformed. Mr. R Mukundan How Master Data Management Enables Resilient Supply Chains What Master Data Management Can Do for Your Business A Guide to Artificial Intelligence Governance Best Practices Hyper personalization engine: Build or buy? Looking to turn data into value? Theme Font size Line height =====================

How Australian organizations measure up for data maturity

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the abundance of data to its democratization. The importance of robust data and analytics frameworks has made its way into boardrooms with leaders looking for better sources to harness data from their ecosystem. This includes partners, suppliers, and customers as well as open data sources to glean actionable insights. This allows enterprises to reinforce their relevance and drive better revenue growth by improving their data and analytics maturity. At another level, data democratization empowers users and propels transformative organizations towards higher levels of data maturity. As an organization goes up the data and analytics maturity curve, the extent to which analytics contributes to its business performance (net income) also increases. Data analytics positively impacts an organization's ability to create new business models and respond to market dynamics as well as mass-customize their products and services. To understand the relationship between data maturity and an organization's growth, TCS teamed up with Deakin University in Australia to study the level of data maturity and its impact on the bottom line. The study focused on discovering the data maturity journey of organizations across industries. The Deakin University study covered 138 organizations across 18 industries and was conducted in 2022. It found that Australian organizations self-reported medium to high levels of data maturity. A healthy 66% of the respondents rated themselves as effective in data sharing and beyond.   The pandemic reinforced the role of data and analytics in an organization's survival and performance. 95% of the respondents agreed that data and analytics had a higher impact on strategic decision-making coming out of the pandemic. A value-driven maturity journey, inclusive data and analytics culture, and a balanced data governance approach were found to be key elements in leveraging data and analytics for business gains. The infographic depicts the degree of automation in the data analytics process in Australian organizations, levels of leveraging data analytics to develop new business models and response to markets, and the percentage of people who agree/ disagree on how data and analytics are critical to strategic decision-making. The infographic depicts the degree of automation in the data analytics process in Australian organizations, levels of leveraging data analytics to develop new business models and response to markets, and the percentage of people who agree/disagree on how data and analytics are critical to strategic decision-making. …the 'people' should be taken on the data journey, and this many-a-times requires people playing with data getting out of their offices and interacting (and understanding) with representatives from different parts of the business." John Howell The experiences and practices shared by research participants produced numerous recommendations that we have split into three major categories. Set course for a business-driven data and analytics maturity journey An effective data-driven strategy is one that is informed of the overall business strategy, business needs and relevance to all stakeholders within the organization. It presents a clear and justified path with defined resources necessary to satisfy the identified requirements. Adopt an inclusive data and analytics culture An inclusive and educative organization-wide data and analytics culture is a critical component to ensure that data and analytics maturity levels are achieved with maximum business value and acceptance. Preserve a balanced data and analytics governance The key to a successful data and analytics maturity journey is finding the perfect balance between data governance, technology investment, and stakeholder management. An

inclusive organization-wide data and analytics culture is critical to ensure data and analytics maturity levels are achieved with maximum business value and acceptance. Investment increased in data and analytics technologies during the pandemic Demand for agile data analytics has increased Need for data analytics strategies as part of the overall business strategy In both the TCS studies—in the Netherlands and Australia—the key takeaway was that data maturity requires a data-driven mindset and data democratization across the board. Much like the Deakin study on data maturity in Australian organizations, the High Performance Data Organization (HPDO) survey delved into assessing and benchmarking organizations in the Netherlands. To get a better perspective on how 'data mature' Dutch organizations are, TCS under the aegis of Datom Indus Program, partnered with Tilburg University/TIAS Business School and ICT Media in commissioning a research study. The study revealed that the data and analytics maturity in the surveyed organizations in the Netherlands was slightly higher than the global average. We found that truly high performing data-driven organizations have made data and analytics a high priority at the board level. They invest in improving their data centricity, literacy, and governance while also streamlining processes that break barriers to accessible data. Modernize your data centers with TCS Daezmo™ TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption Enterprise innovation with TCS Business Analytics Solutions Explainable AI: Transparent Decision Making with a Post-hoc Approach Theme Font size Line height =====================

Data maturity requires a data-driven mindset

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resources and utilities sector with a revenue over €1,000 million.   Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. A study dissects what drives high-performance digital organizations 6 MINS READ TCS Sponsored research You have these already downloaded We have sent you a copy of the report to your email again. With an abundance of data available at various levels, it is vital for organizations to take a holistic view on their data and analytics landscape to stay ahead of the curve. Poor data and analytics frameworks and low automation could balk an enterprise's chances of successfully monetizing its data insights. Digital businesses win by putting technology and data to its best use on their transformation journey—to become data-driven high performance digital organizations. Becoming a high-performance digital organization requires an adjustment in strategy, partner collaboration, and leveraging analytics insights to pursue growth and transformation ambitions. We partnered with Tilburg University/TIAS Business School, ICT Media and surveyed 62 organizations about their data maturity levels. This HPDO survey aimed to assess and benchmark an organization's data maturity. Many of the surveyed organizations had a low analytics cloud computing score. Analytics needs cloud computing, and so having a good score on this front is the first step to data maturity. Many of these organizations did not have a good data maturity foundation. Poor data management and analytics automation, limited use of open and external unmanaged data combined with low usage of active data warehouses and data lakes required immediate attention. When we compared the insights of the Dutch survey with our experiences in implementing our TCS Datom™ assessments, we learnt that the data and analytics maturity in the Netherlands was slightly higher than the global average. Yet the Dutch maturity was still at the 'low to medium' range. This puts them at a disadvantage when it comes to improving business performance. Only 15% of Dutch organizations are increasing their business effectiveness by leveraging data and analytics. Those that are data-driven high-performance digital organizations have anchored this priority at the board level and implemented a data-driven mindset and culture across the board.   None of the surveyed Dutch organizations qualified as best-in-class on all the above aspects. Eight organizations qualified as laggards on all five aspects, which

are in the following sectors: The remaining organizations have large diversity in data and analytics basics. In conclusion, most Dutch surveyed organizations need to take immediate action towards their data maturity. The effectiveness of how they conduct business must be improved by leveraging data and data analytics—to disrupt and avoid being disrupted. Organizations must ensure that their data and analytics abilities are aligned within the business' value chain. Increased focus on data literacy, analytics automation, and modern data governance techniques will help them achieve the required data-driven results.   In this research study, our data and analytics model TCS Datom was used to assess data maturity. This model contains five maturity stages. By contrast, in the global enterprise assessments (total number being 103), the highest maturity level in the utility sector is 'Scaled' (stage 3 of maturity). Only one retail company operated at the 'Self optimized' maturity level. The average data and analytics maturity of the Dutch surveyed organizations is different from the globally surveyed organizations, indicated by a higher average maturity score of 1.82 for the Dutch surveyed organizations (total number being 62) versus. 1.67 for the globally surveyed organizations (total number being 103). Media partner ICT Media Academic partners ICT Media and TIAS School for Business and Society Knowledge partners This blog was written in partnership with ICT Media and TIAS School for Business and Society. Josu Devasia (Managing Director & Head, TCS, Netherlands) B.V. Dinanath Kholkar (VP and Global Head, Analytics & Insights, TCS) High performance digital organizations are built around data. It shouldn't come as a surprise that their CIOs and CDOs have an important role here. They are the nexus between data (rich, high-priced information), the boardroom, and the supervisory board. These tech leaders are outward-looking and understand their stakeholders: end users in the business, B2B customers, business partners, and consumers. Rob Beijleveld TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption How Master Data Management Enables Resilient Supply Chains What Master Data Management Can Do for Your Business A Guide to Artificial Intelligence Governance Best Practices Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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How French companies fare on TCS Datom™ data maturity scale

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data maturity and business performance. Given the diversity of maturity levels observed during the study, the surveyed organizations had to self-assess and define their areas for improvement. Most respondents stated that they have started to analyze external data in addition to their verified internal data. Also, more than half of the respondents rated their maturity level as 'low' or 'medium', with a limited data sharing capacity within their organization. More than a third of the surveyed companies own a data lake or have an active data warehouse. However, approximately half of the organizations are yet to define any data and analytics competency levels. As a part of the Datom-Indus initiative (under the aegis of TCS Datom data maturity and strategic framework), we seek to establish TCS Datom data maturity assessment as a critical process for all organizations. Business leaders need to consider multiple aspects while investing in data and analytics. At an organizational level, adopting agile business practices, automating processes, and improving data management and governance are a few key considerations. At a human level, training programs need to be set up to define and improve employee skill levels. The TCS Datom framework can play an important role here—pave the path for enterprises to build future-ready, insights-driven businesses. The previous chapters of this initiative were undertaken with Tilburg University, Netherlands and Deakin Business School, Australia. These studies illustrated how organizations need to embrace digital transformation to stay relevant and drive growth in a post-pandemic world. The studies also showed how leaders must apply technology and data to become truly data-driven, high-performing digital organizations. Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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Building resilient networks

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Cognitive Network Operations

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SOLUTION TCS' Cognitive Network Operations enables telcos to drive analytics-led operations. Key features include: Single view of network: Single and correlated display of alarms with service view, which phenomenally reduces monitoring and troubleshooting effort Fault and performance prediction: Predictive view of alarms and performance, with probability, to enable shift-left operations; combination of reactive and predictive tickets for economical resolution Heuristic data analysis: Comprehensive view of fault configuration and performance data from the entire ecosystem of network functions to gauge user experience holistically Auto-ticketing of network faults: Gets the feed from social media and contextualizes customer mentions to technically interpret the problems in network functions and issue automatic tickets Exhaustive libraries for faster and precise implementation: Libraries of network faults and topologies to accelerate alarm grouping, correlation, root cause analysis, and impact analysis features BENEFITS Leveraging TCS' Cognitive Network Operations, telcos can: Want to go beyond traditional boundaries?
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TCS Next-Gen OSS Services

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catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Embrace digital transformation with an E2E OSS transition solution You have these already downloaded We have sent you a copy of the report to your email again. CHALLENGE Nowadays, communications service providers (CSPs) are facing stiff competition from digital natives and over the top (OTT) players that are encroaching their space. CSPs need to revamp their current operations support systems (OSSs) and invest in modern technologies such as 5G and mobile edge computing. They require a next-gen OSS that enables the roll-out of innovative products and solutions, optimizes existing networks, and brings network access closer to consumers. TCS SOLUTION Aimed at enhancing customer experience, TCS Next-Gen OSS Service helps CSPs with seamless digital transformation. Key features include: OSS Advisory Services: Assesses fitment of OSS systems and architecture to maximize strategic capabilities and increase the potential to monetize networks. OSS Digital Transformation Services: Provides E2E transition and transformation services in areas such as zero-touch intelligent service orchestration and use-case implementation for cognitive service assurance. OSS Integration Services: Works as a system integrator for OSS transformation programs and provides microservices for BPM smart workflow automation and multi-technology activations. OSS Agile Operations Services: Provides agile OSS operations covering application operation, maintenance, and development and delivers them through multiple models Aimed at enhancing customer experience, TCS Next-Gen OSS Service helps CSPs with seamless digital transformation. BENEFITS The TCS Next-Gen OSS Services provide end-to-end support to CSPs for digital transformation. Benefits include: Maximize Network Reliability and CX with NextGen Service Assurance Acceleration of Site Engineering for Faster 5G Network Deployments Enable faster 5G rollout with SDN Data Management in 5G Networks for Driving the Networks of the Future Want to go beyond traditional boundaries? =====================

Extending Microsoft 365 Copilot capabilities

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world-leading investors. Figure1 Figure2 Figure3 Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Reimagine your workplace by amplifying the power of Microsoft 365 Copilot with integrated applications and plugins You have these already downloaded We have sent you a copy of the report to your email again. Microsoft 365 Copilot is a copilot for work, helping unleash creativity and productivity. Microsoft 365 Copilot has opened the doors to truly transformative technology. By combining the power of large language models (LLMs) with enterprise data and Microsoft 365 apps, this 'copilot for work' is helping unleash creativity, unlock productivity and uplevel skills. It is helping nurture creativity innovation and reimagine the workplace by freeing people from the drudgery of mundane tasks, removing complexities, and simplifying and streamlining work. The potential of Microsoft 365 Copilot to transform the way we work is huge. And according to Forrester, 6.9 million US knowledge workers will use Microsoft 365 Copilot in 2024. In the rapidly evolving business landscape, the speed of adoption of Microsoft 365 Copilot can be a crucial game changer. TCS offers a 3E approach to adopting Microsoft 365 Copilot. We also recommend four steps to extending its capabilities. As Microsoft's trusted partner in transforming workplaces with Microsoft 365 Copilot, TCS advocates that enterprises adopt a streamlined and accelerated approach to harness the tool's full potential. We recommend establishing a robust AI foundation first; then setting up responsible AI for specific use cases and assessing the efficiency of work powered by Microsoft 365 Copilot; and thereafter, enhancing experiences and business outcomes through plugins. An infographic depicting a TCS-recommended approach to adopting Microsoft 365 Copilot. TCS believes in establishing a robust AI foundation first; then setting up responsible AI for specific use cases and assessing the efficiency of work powered by Microsoft 365 Copilot; and thereafter, enhancing experiences and business outcomes through plugins. Three Es to adopting Microsoft 365 Copilot Microsoft 365 Copilot provides extensibility frameworks to enable external data and actions within native experiences. This helps enterprises run advanced planned and unplanned scenarios in rapid timelines using GenAI and use the insights to provide contextual experiences. We recommend a four-step approach for adopting

third-party plugins for Microsoft 365 Copilot, to build contextual experiences at a faster pace: Engage: Involve IT and business stakeholders to envisage extension frameworks and plugins that enhance the overall experience and features of Microsoft 365 Copilot. Ideate: Conduct ideation workshops for advanced use cases considering business imperatives, goals, and opportunities. Build: Identify common business-specific systems that can leverage Copilot and build integration connectors to enable Copilot to use enterprise data, thereby enhancing the AI experience to the fullest. Prototype: Provide a minimum viable product (MVP) with rapid prototyping to realize the extended experience and ensure design feasibility in line with established architecture principles. An illustration depicting a 4-step approach to extend Microsoft 365 Copilot capabilities with third-party plugins. This includes engaging IT and business stakeholders to envisage extension frameworks and plugins, ideating for use cases, building integration connectors to enable Copilot to use enterprise data, and rapid prototyping to realize the extended AI experience. A 4-step approach to extending Microsoft 365 Copilot capabilities with third-party plugins TCS' Microsoft 365 Copilot services includes leveraging a range of our plugins that can help broaden the capabilities. Modern-day workplaces depend on diverse systems and services for work management and collaboration. While Microsoft 365 Copilot helps make work better and faster through access to and analysis of data in the Microsoft 365 ecosystem, it can be made even better by extending and enhancing its capabilities to include data and information from other work-specific systems and tools. TCS has a range of plugins that can help broaden Microsoft 365 Copilot's capabilities. From providing contextual enterprise search experiences and integrating diverse systems and services to finally initiating data-driven actions, our plugins will help bridge the last-mile gap between the service and other third-party tools and services, thereby unlocking its true potential. A table showing a list of TCS' ready-to-use plugins that can be further customized to meet specific business needs. It includes a Smart Agent for Copilot, a Smart Integrator for Copilot, and a Knowledge Master for Copilot. The table also lists a few use cases under each of these categories. TCS' ready-to-use, custom plugins for Microsoft 365 Copilot Leveraging TCS' capabilities and expertise, enterprises can extend and enhance their Microsoft 365 Copilot ecosystem and reap greater benefits from the Copilot investment. Key benefits: Enhanced efficiency and productivity Data-driven insights to support decision making Seamless collaboration with team members Enhanced customer experiences and engagement Leveraging TCS' key differentiators, enterprises can extend and enhance their Microsoft 365 Copilot ecosystem. Some of our key differentiators: Strategic partnership with Microsoft: As a Microsoft Premier Outsourcing and Microsoft Gold Certified partner, we get priority support from Microsoft. 17 Microsoft advanced specializations: We have set new records within Microsoft's Cloud Partner program with the number of specializations we have acquired. Proven experience managing Microsoft suite of products and services: We bring our experience in Microsoft suite of products and services to help customers globally make the most of their investments in them. We are a Leader in the Everest Group Digital Workplace Services PEAK Matrix® Assessment 2023 for North America and Europe. We are a Leader in the ISG Provider Lens™ Future of Work (Workplace) – Services 2023 for the United States, the United Kingdom, and Australia. TCS Generative AI Enterprise Adoption on Azure

TCS' accelerated adoption approach for Microsoft 365 Copilot

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productivity. According to Gartner, 90% of organizations worldwide will have adopted GenAI as a workforce partner by 2025. Early adoption of GenAI tools such as Microsoft 365 Copilot will give businesses a competitive advantage. TCS believes that companies need to adopt a streamlined and accelerated approach to harness the GenAI tool's full potential. We recommend establishing a robust AI foundation, setting up responsible AI for specific use cases, assessing the efficiency of work powered by Microsoft 365 Copilot, and enhancing experiences and business outcomes through plugins and add-ons. An infographic depicting a TCS-recommended approach to adopting Microsoft Copilot. TCS believes in establishing a robust AI foundation first; then setting up responsible AI for specific use cases and assessing the efficiency of work powered by Microsoft 365 Copilot; and thereafter, enhancing experiences and business outcomes through plugins. 3 Es to adopting Microsoft 365 Copilot (Establish a robust AI foundation) Gain a head start over your competition with TCS' readiness, provision, illustrate and deployment framework for Microsoft 365 Copilot. TCS' readiness, provision, illustrate and deployment framework for rolling out and deploying Microsoft 365 Copilot is a well-proven implementation guideline for the solution. The implementation imperatives include the following: Envision and identify pertinent use cases leveraging TCS' discovery, assessment, ideation, and strategy (DAIS) framework for enterprise adoption of generative AI. Gauge efficiency of use cases using our prompt scoring mechanism. Execute pilot implementation of Microsoft 365 Copilot. Govern program execution leveraging Microsoft 365 Copilot Center of Excellence. Promote learning and collaboration among Copilot users through the Microsoft 365 Copilot lab. Improve adoption and use of Microsoft 365 Copilot through gamified leaderboards. Optimize adoption and change management. Define data and content governance measures. Develop Microsoft 365 Copilot implementation blueprint based on the outcome of the pilot. Though the duration of the implementation process may vary from customer to customer, at a high level, TCS envisions that the implementation will take a minimum of three months. An illustration depicting the Microsoft 365 Copilot implementation timeline as envisioned using our readiness, provision, illustrate and deployment framework. Though the duration of the implementation process may vary from customer to customer, at a high level, TCS envisions that the implementation will take a minimum of three months. Microsoft 365 Copilot implementation timeline TCS' approach to Microsoft 365 Copilot adoption Through its well-established change management and adoption process, TCS' readiness, provision, illustrate and deployment framework for deploying Microsoft 365 Copilot ensures that companies are supported throughout the implementation journey. It uses a set of calibrated and measurable steps to accurately gauge an organization's people, strategy, and technology readiness for the deployment and rollout of the solution in a phased manner. It comprises the following four phases: Readiness and architecture Duration: Approximately four weeks Prepare a readiness scorecard with licensing, identity, security, permissions, and governance parameters. Build a use case catalog by leveraging the TCS DAIS framework. Define the efficiency of use cases using our prompt scoring mechanism, capturing prompts across factors such as efficacy, reliability, and neutrality along with data on the frequency of usage and productivity gains. Conduct Copilot awareness sessions for pilot communities and champions. Define

communication and project management plans. Provision Duration: Approximately 6 weeks Roll out Microsoft 365 Copilot for pilot users in waves or phases, and support pilot communities. Establish creative networks to capture real-time feedback on Microsoft 365 Copilot. Plan for Microsoft 365 Copilot center of excellence (CoE) to share knowledge and support adoption with Copilot experts. Illustrate Duration: Approximately four weeks (overlapping the provision phase) Develop leaderboard dashboards for top use cases, most efficient prompts, and contributors/ champions. Evaluate return on investment, taking into consideration the pilot implementation. Draft blueprint for more comprehensive Copilot implementation. Deploy Duration: Approximately two weeks Define and strategize the communication and evangelization plan for Microsoft 365 Copilot. Establish the process for Microsoft 365 Copilot usage analytics and license management. Define governance review process for data security and content management. Implement feedback and analysis mechanism for continuous improvement. Enterprises can extend and enhance their Microsoft 365 Copilot ecosystem and reap greater benefits from their investment. Key benefits: Enhanced efficiency and productivity Data-driven insights to support decision making Seamless collaboration with team members Improved customer experiences and engagement Leverage our technology and domain expertise to amplify your ROI. When you work with us, you can make the most of partnership with Microsoft and our work with some of the world's leading organizations on many industry-specific use cases, proofs of concepts, and pilots using Microsoft 365 Copilot. With TCS, you can leverage: A trained workforce: We have over 5,000 AI-trained digital workplace associates to help you embark on your Microsoft 365 Copilot journey. Investment in research: TCS is a founding member of the future of work research consortium. Strategic partnership: TCS is part of the Microsoft Preferred Content AI Partner Program as well as Microsoft's early access program for Copilot. Continuous investment: We are continuously investing in our readiness, provision, illustrate and deployment framework for enterprise workplace adoption and prompt scoring mechanism to measure the effectiveness of Copilot. TCS Generative AI Enterprise Adoption on Azure Drive Teams Collaboration in the Workplace with Smart Meeting TCS Digital Workplace on Microsoft Cloud for Superior Employee Experiences TCS Knowledge Experience Offering to Redefine Future of Work Learn how we can help with the next step of your generative AI journey. Theme Font size Line height =====================

Powering the Intelligent Enterprise

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A Partnership Powering Edge to the Cloud

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Create exponential value with hybrid cloud

TCS Enterprise Cloud Strategy to scale Our approach Insights Cloud value Legacy IT Resilience DevSecOps Our services, customized for you Belief in action Benefits Let's make the cloud connect TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Intelligence first Full-stack hybrid cloud services Adaptable solutions Ecosystem advantage Banking on cloud Supply chain Digital transformation Business restructuring In the news Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Cloud / TCS Enterprise Cloud Powering enterprises' digital and business transformations with hybrid cloud You have these already downloaded We have sent you a copy of the report to your email again. With TCS Enterprise Cloud, you can gain a competitive edge, keep up with changing business needs, and stay compliant with ever-evolving regulatory and privacy directives while accelerating innovation for sustainable growth. Accelerated value realization Synergized IT landscape Next-gen hybrid cloud orchestration Full-stack cloud services   Maximize value with a clear hybrid cloud strategy. Why mainframe and cloud must go hand in hand. Unleash business resilience with enterprise cloud. Four steps to a cyber-resilient enterprise cloud. 01. Intelligence first Enable actionable insights with big data, AI, and automation. Enable actionable insights with big data, AI, and automation. Our programmable infrastructure and built-in

accelerators enable big data, machine learning, AI, and automation across the entire IT landscape. 02. Full-stack hybrid cloud services Build a resilient core with our end-to-end services Build a resilient core with our end-to-end services Our software-defined capability enables automation, cloud service brokerage, and resilience at all levels on zero trust architecture. 03. Adaptable solutions Enable bring your own license (BYOL) and co-location services for legacy infrastructure and applications. Enable bring your own license (BYOL) and co-location services for legacy infrastructure and applications. We accelerate modernization by enabling bring your own license and co-location services for legacy infrastructure and applications. 04. Ecosystem advantage Facilitate a heterogeneous cloud ecosystem by bringing cloud-native and legacy IT together with our unified hybrid cloud platform. Facilitate a heterogeneous cloud ecosystem by bringing cloud-native and legacy IT together with our unified hybrid cloud platform. Our unified platform facilitates a heterogeneous cloud ecosystem, bringing together cloud-native and legacy applications.   Transform your IT ecosystem with the power of one cloud. Our solutions enable a resilient and secure hybrid cloud ecosystem that drives innovation and supports next-gen business models to accelerate enterprise growth and transformation. SATISHCHANDRA DORESWAMY Nuuday signs major cloud transformation deal with TCS TCS and Co-op cement ties with a cloud-first strategy Athora Netherlands expands strategic partnership with TCS TCS named a leader in multi-cloud managed services Leader in everest cloud services Leader in Gartner® Magic Quadrant™ Theme Font size Line height Want to maximize value from cloud for your enterprise? =====================

Howmet undergoes seamless business separation

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futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. You have these already downloaded We have sent you a copy of the report to your email again. In 2019, Arconic Inc., a leading global provider of aerospace and defense products, announced the separation of its business portfolio into two enterprises, Arconic Corp. and Howmet Aerospace Inc., to explore new markets and maximize shareholder value. This required that IT assets, applications and infrastructure be divided, all in under a year. To ensure this, Howmet Aerospace needed an end-to-end technology transformation program, covering all business areas, including core ERP systems, enterprise and business applications remediation, infrastructure and global network separation. A fit-for-purpose TCS solution ensured seamless separation, tech transformation at Howmet. Working as a strategic partner with Arconic Inc., TCS designed and executed a successful business decoupling program for Howmet Aerospace Inc. The TCS team considered various aspects such as scalability, current templates, virtualized and non-virtualized infrastructure, and existing production environments to ensure the separation program was delivered on time, within budget, and with favorable outcomes in the first time itself, when the project was executed. Leveraging the TCS enterprise cloud platform, the team laid down the foundation block of cloud instance migration with standard and non-standard computation flexibility. The implementation of TCS' Global Network Delivery Model™ and TCS Location Independent Agile™ frameworks enabled 20+ work streams across the globe (onshore & offshore) to collaborate and deliver timely results. Keeping automation its focus, TCS eliminated the need for manual intervention in areas such as data conversion and code remediation. Additionally, being well-versed with the firm's application portfolio helped TCS ensure the business restructuring project was a success. An impeccable business separation program TCS delivers an impeccable business separation program at Howmet Aerospace Inc. Our customer-centric approach ensured seamless division of resources within time and budget. The TCS team also helped Howmet Aerospace realize their full potential by enabling core businesses through enterprise systems and technologies. Seamless division of servers Remediation of applications Reallocation of mailboxes 01. TCS Enterprise Cloud With a future-ready hybrid cloud strategy and innovative cloud services, TCS helps

clients gain a competitive edge and business agility. 02. TCS and Microsoft Cloud Read how TCS and Microsoft Cloud's strategic partnership helps enterprises drive their edge-to-cloud transformation and deliver greater business outcomes. With TCS Enterprise Cloud, we are quickly able to scale in whatever direction the business takes. Edward Portolese Federated E-mobility Platform: The Path to a Zero-carbon Future The MW Dispatch Platform: Accelerating NGESO's Net-zero Future Arrow Energy and TCS look forward to continuing the growth momentum Driving Transformation and Sustainability with AI in Mining Want to get the innovation edge with cloud? Theme Font size Line height =====================

Securing a cloud-first approach

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multiple cloud platforms as the best-fit approach to usher in agility, innovation, and scalability. Given the increase in the scale and severity of cyberattacks, enterprises need to prioritize cloud security. Security strategy must factor in cyber threat prevention, compliance, access and identity controls, and business continuity. Each day about 500 million tweets are shared, four petabytes of data are created on Facebook, and more than 5 billion searches are made on the Internet.   These facts might amaze you, but with the influx of digital and emerging technologies, data proliferation has been exponential. Traditionally, most enterprises thrived in an environment defined by security boundaries, where it was relatively easy to manage compliances and controls. Those days are over. Thanks to evolving business dynamics, enterprises are taking a cloud-first approach, combining multiple cloud platforms as the best-fit approach to usher in agility, innovation, and scalability. While "the more, the merrier" can be a rule of thumb for data, it doesn't come without its share of caveats and constraints regarding data risk, security, and compliance. This raises concerns over security and regulatory compliance. Your enterprise cloud security systems merit due consideration, given the increasing complexity and scale of cyber threats. Simply put, cloud security is a branch of the larger security ecosystem that exclusively deals with securing cloud computing systems. It involves: Strategy for cyber threat prevention, detection, and mitigation. Legal and regulatory compliance. Access and identity controls. Business continuity plan. The security landscape has been evolving rapidly, with digital maturity and businesses accelerating their cloud adoption: As enterprises embark on hybrid multi-cloud environments, data risk exposure mapping becomes more complex. The high availability of computing paradigms and a rapidly expanding application environment make data control more difficult. Data-intensive and high-speed networking technologies like WiF-6, artificial intelligence (AI) and machine learning (ML), and 5G are driving competitive advantage. But they have also raised various privacy and ethical concerns. As the technology landscape evolves, regulatory norms are getting tighter. Legislations in the EU and the Americas have enforced increasingly stringent controls, including General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA). The onus of ensuring data security and privacy lies with all the stakeholders involved in the business value chain. Typically, in a conventional setup, cloud security isn't considered an integral part of enterprise governance strategy because its benefits are not measured and quantified as a value or return on investment. As a result, marketing or product positioning strategy often fails to highlight cloud security investments. Some enterprises continue to view cloud security from an outdated business and technology standpoint, seldom relevant in today's digital world. They need to realize the importance of safeguarding their digital footprint and digital assets from internal and external threats. Enterprises should adopt a cloud-agnostic approach with a centralized security monitoring system as a base for a multi-cloud security strategy. Here are a few things you should focus on: Get full visibility into operations: Enterprises must first understand their risk exposure to know what might hit them. Here, visibility becomes the foremost factor that affects response and readiness. Highly regulated industries are building a complimentary birds' eye view of their information systems. The rest are leveraging APIs and other native services for building interactive dashboards that offer a

holistic view of affected systems and notify the right roles when mishaps occur. Guard access: Role and attribute-based access controls can help secure sensitive data through a layered approach to protecting sensitive information. Likewise, introducing simple policies and educative measures can help evade the biggest yet simplest attacks like phishing, ransomware and spoofing that can lead to regulatory disasters, data breaches, and big equity and brand value losses. Embed security into software development: To unleash DevSecOps, enterprises must build security milestones into their continuous integration and continuous deployment (CI-CD) pipelines. For instance, security validation is necessary in every implementation phase—from design till deployment—for application and infrastructure. Adopt an extended enterprise worldview: Educating customers and end users on the enterprise's approach to security best practices and incorporating partners, third parties, and vendors in the larger digital risk management framework is key to sealing data leakages. After finalizing specifications and standards for your cloud security, the next step is to figure out how to achieve them. It's also important to ensure business value and security spend alignment while aligning cloud security strategy with the larger business strategy. Talk to the board: Emphasize why cyberattacks and approaches to mitigating such risks merit a thoughtful discussion along with business goals, regulatory requirements, and value demonstration of security spend with the CSO team. Invest in business problems: Instead of clubbing cloud security investments with the budget of the overall system, segregate cloud activities into individual segments, tools or technologies, and processes. It will help you understand, measure, and quantify impact against spend. Monetize your cloud security spend: You can do this by highlighting your cloud investments in the marketing and product development strategy. This way, you can recover the spend by proactively selling privacy and trust as a value proposition in the product or service roadmap. Combat with intelligence at scale: Using advanced AI techniques to ensure endpoint security, predict events, take automated response measures, unearth vulnerabilities, and deploy continuous monitoring can prove worthwhile when securing enterprise systems at scale. Susan Blesener Rex George Vinayak Gole Nikhil Patwardhan Want to maximize value from cloud for your enterprise? Theme Font size Line height ======================

Maximize business value with a clear hybrid cloud

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hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Satishchandra Doreswamy Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Satishchandra Doreswamy Vice President & Global Head, TCS Enterprise Cloud You have these already downloaded We have sent you a copy of the report to your email again. Today, cloud is an enabler of robust business models and the technology core of innovation ecosystems. An effective cloud strategy shows a clear path to business value through enterprise resilience and accelerated innovation. Hybrid cloud ensures that enterprises are compliant with the ever-evolving regulatory and privacy directives, while enabling them to continue their digital transformation in a secure environment. Like most world-changing technologies, enterprises did not take to cloud immediately, and those that did adopt cloud did so mostly in a piecemeal manner. The TCS COVID-19 Business Impact Survey1 showed that only 27% of organizations have core enterprise systems on cloud. This implies that many enterprises fell for ineffective, on-off strategies, leading to disjointed adoption with each business function collaborating with different cloud vendors. This also spurred siloed initiatives leading to higher, redundant costs with little ROI. What can leaders do to correct this? Adopting an effective hybrid cloud strategy can ensure optimum cloud management and offer great results. Take this leading beverage company headquartered in Japan but boasting of more than 300 related businesses worldwide. When it needed to quickly streamline its mergers and acquisitions IT to keep up with continued growth, a hybrid cloud solution blending scalable public cloud and flexible private cloud helped it consolidate, optimize, and standardize its IT —and got the entire organization spread across multiple countries working on one unified and flexible hybrid cloud system. Or take the case of a global shipping enterprise that stores and transports essential items such as edible oils, petroleum products, and industrial acids to its worldwide customers on a 24/7 basis. When the cities and workplaces were shut down due to Covid,

the enterprise had to step up its IT infrastructure almost overnight to enable remote working for its employees and keep its global supply chain up and running. Remote working was enabled for over 2,500 people in two phases without disruption to business by leveraging Citrix's virtual desktop infrastructure (VDI). A future-forward hybrid cloud strategy is crucial to gain a competitive edge, empower your business to continually evolve, and keep up with changing needs. So, what can you do to make your hybrid cloud strategy strong, sound, and adaptable? We recommend four steps: Once you've defined your hybrid strategy, implementation is next. Here's how to make the process as smooth as possible: Analyze your business' digital strategy: Does it extend to the entire business ecosystem? Are there issues you might not fully understand how to mitigate digitally? Again, this is where an expert partner can help. Collaborate and communicate: Adoption rates increase when all stakeholders feel included. So, make sure you don't leave people out and that critical communications reach everyone. Measure cloud strategy effectiveness: Look at short and long-term goals, and measure your progress against them to continuously define the best path forward. Some of the critical measurement parameters you should keep track of are agility, modernization, sustainability, and resilience.   Clearly understanding your company's business strategy, including its position in emerging and industry ecosystems, is imperative to determine the right cloud architecture and partner who will help you move to the future with confidence. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Want to maximize value from cloud for your enterprise? Theme Font size Line height
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Achieve 360-degree resilience with hybrid cloud

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businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 3 MINS READ Satishchandra Doreswamy Vice President & Global Head, TCS Enterprise Cloud You have these already downloaded We have sent you a copy of the report to your email again. The demand for cloud is soaring—driven by companies' need to adapt to a recovering economy with agility; optimize IT resources and cost; and support remote operations. Just take a look at these numbers from our TCS 2021 Global Financial Leadership Study: The Next Era in FP&A1: Clearly, companies realize that cloud is an enabler for business today. It's an integral component for enterprise resilience, supporting high availability, disaster recovery and cost optimization. However, as they rush to embrace cloud, companies need to realize that a robust cloud strategy is key to driving full value from the technology. An efficient and resilient hybrid cloud strategy backed by seamless execution can accelerate enterprise growth and transformation. For instance, innovative business models and resilient business strategies built on hybrid cloud are helping enterprises achieve better security and regulatory compliance, higher return on investment (RoI), IT infrastructure and application modernization, and more. So, how do you create a robust hybrid cloud strategy to scale and build resilience? Building a hybrid cloud platform strategy is typically the first step to moving forward in your cloud journey. A unified technology platform, as shown in the following graphic, enables the integration and orchestration of operations across multiple clouds. This platform-driven model for cloud management and orchestration gives organizations the ability to embrace multi-cloud to better respond to change in a post-pandemic world. It's key to driving IT synergies, as it fosters a confluence of people, data, devices, processes, and systems to catalyze an ecosystem that is collaborative and efficient. An illustration of hybrid cloud management and orchestration. A unified hybrid cloud platform enables the integration and orchestration of operations across multiple clouds, and provides a single pane of glass view for the IT estate. It helps with automation, integration, and portability of data across data centers, on-premises cloud, and private and public cloud. And by fostering a confluence of people, data, devices, processes, systems, and capabilities (including self-service, cloud analytics, and governance), it drives IT synergies and catalyzes an ecosystem that is collaborative and efficient. Once you have

built your digital core with a hybrid cloud platform, here are a few things to focus on to accelerate your evolution to a more digital business with the capability to embrace disruption: Legacy technology is holding back enterprises with high ownership costs, unscalable architecture, low automation potential, and lack of flexibility of these systems. Traditionally, the way to build resilience has been to focus primarily on IT infrastructure and security. Today, modernizing IT infrastructure on cloud provides a 360-degree approach to resilience that covers IT infrastructure (think scalability/flexibility), business operations (high availability and disaster recovery solutions), governance (platform-based orchestration and reporting), and data privacy and security. How well you embrace innovation is what sets you apart from the competition and gives you a competitive edge for accelerating growth and transformation. This is where cloud comes in. A robust cloud strategy allows a convergence of technologies on a single platform, enabling next-gen capabilities like DevSecOps (development, security, and operations) that fast-tracks innovation. This becomes particularly relevant when enterprises continue to expand, and their IT landscape gets complex. Think mergers and acquisitions (M&As) or divestitures of new business subsidiaries. IT integration or separation would have taken years with the conventional IT setup. But today, enterprises can leverage a hybrid cloud ecosystem to synergize IT or reduce the separation cycle time by enabling a logical separation. All this without setting up an entire infrastructure from scratch, thus streamlining and supporting strategic business decisions. With remote working and remote operations becoming an integral part of emerging business models, you could be concerned about security, data privacy, and employee productivity. Investing in unified communications solutions and security tools that allow employees to work remotely without compromising security is an imperative. Transform the way you run your day-to-day operations. Start by moving from a desktop-centric model to a multi-device, anytime-anywhere model that fosters agility and provides employees the flexibility to work from anywhere while boosting productivity and security. Building new beginnings Resilience enabled by a hybrid cloud platform and a trusted partner can empower enterprises to effectively respond during times of uncertainty while accelerating their digital journey. With a cloud-led ecosystem, you are well on your way to build a resilient and sustainable business future. TCS Enterprise Cloud Platform: Accelerating Application Modernization TCS enterprise cloud services Hybrid cloud strategy Drive value with an intelligent data platform on cloud Want to maximize value from cloud for your enterprise? Theme Font size Line height =====================

Synergizing your IT ecosystems with cloud

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and cloud About the author Related reading Stay in the know TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Dr. Rajesh Srinivasan Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Dr. Rajesh Srinivasan Head–Sales, solution, and product engineering for TCS Enterprise Cloud, TCS You have these already downloaded We have sent you a copy of the report to your email again. Much like our natural ecosystem, a business ecosystem synergizes and grows. Like a tree, new branches sprout from the core making the whole structure stronger and better able to stand tall against the winds of change. A technology platform, for example, might represent one branch of the tree as it develops and manages systems, applications, and processes—all the while strengthening an enterprise's technical capabilities. Similarly, innovation and upskilled employees could be other branches helping the tree grow stronger. Think of the hybrid cloud as the fertilizer, sunshine, and water that allow the tree to prosper. Without it, businesses risk stunted growth and may even break rather than bend when faced with inevitable change. With the technology landscape evolving constantly, technology's ability to keep pace with change while being relevant, serviceable, customizable, and viable is being tested. It has now become essential for enterprises to holistically evaluate their technology strategy and harness the ecosystem. With the benefits that cloud brings, it's no wonder then that today enterprises are adopting a cloud-first strategy leveraging combinations of cloud as the best-fit approach for agility, scalability, and innovation.   To power business growth, global enterprises are looking to tap dynamic technology ecosystems—interconnected, interdependent networks aimed at driving innovation, efficiency and sustainability. Companies have

invested in various new technologies and in creating a heterogeneous IT environment wherein legacy and next-gen technologies can coexist. Such an environment helps organizations protect their investment by allowing legacy IT modernization along with adoption and integration of next-gen technologies at the same time. For example, mainframe technologies play a critical role in industries like financial services, insurance, travel, and government agencies that rely heavily on them for processing high-volume transactions. Thus, coexistence of technologies in the company's IT ecosystem is not just inevitable but advantageous. Industries relying only on legacy technologies for high-speed and high-volume transactions usually face challenges like high ownership costs, unscalable architecture, and low automation potential. Mergers and acquisitions (M&A), which is one of the ways enterprises fuel their growth and expansion, can be particularly challenging as they often lead to heterogeneous technology ecosystems. However, in an integrated mainframe-cloud environment, enterprises can leverage the flexibility of the cloud to run business applications while optimizing cost and bank on the mainframe for its transactional and computational power. Here are some examples that helps put things in perspective: The banking, financial services, and insurance (BFSI) companies are one of the largest beneficiaries of the mainframe. Take the case of a leading Nordic-based insurance company or that of a top Finnish financial company. Building a future-ready digital core through IT modernization helped them increase their efficiency, embrace innovative business models, deliver best-in-class customer experience and gain a competitive edge. For those looking to build a future-ready technology foundation while making the most of their existing IT, modernization of the IT environment through mainframe-cloud integration is the preferred solution. It enables them to reap the dual benefits of agility and resilience of cloud plus bulk transactional and computational power of the mainframe. In an ideal world, there would be a confluence of classic, contemporary, and futuristic technologies that can pave the path for sustainable growth. Although leveraging disparate ecosystems is on the priority list for most enterprises, legacy modernization challenges during a tech refresh can be overwhelming. A technology partner with the required experience can help navigate the journey seamlessly. Join the smart enterprises league using cloud agility to strengthen legacy infrastructure and develop agile, cost-effective solutions to meet evolving business needs. Pave Way for Application Modernization with Automated Documentation ERP on Cloud Platform: Transforming Global Indirect Procurement IFFCO's business process transformation with SAP S/4HANA Indirect Procurement Solutions Transform Panasonic Corporation Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered above for the purpose of receiving newsletter from TCS For further details on how your personal data will be processed and how your consent can be managed, refer to the TCS Privacy Notice. Thank you! We'll be in touch with you shortly. Looks like we are experiencing some connectivity issues. Please try after some time. Theme Font size Line height
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TCS Enterprise Cloud services

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cloud environments. Designed for global delivery using a landing zone architecture that supports the localization of cloud services, infrastructure as a Service (IaaS) is the foundation of TCS' hybrid cloud. Our platform is a software-defined (SDx) environment built on a zero-trust architecture using an open secure architecture-based backbone with extensive automation and tooling. Our Platform as a Service (PaaS) supports the development of cloud-native applications by utilizing critical capabilities, such as container as a service (CaaS), workplace as a service (WaaS), SAP HANA on the cloud, big data platform as a service, database as a service, blockchain services, and digital business experience monitoring as a service (DBEMaaS). Enterprise Cloud PaaS incorporates high-performance compute accelerated analytics and AI (HPC A3) to support training AI, ML, and deep learning models. Our platform also supports mission-critical workloads and provides access to industry solutions on SAP, TCS OptumeraTM, TCS BaNCSTM, TCS Advanced Drug Development (ADD), Intelligent data as a service (iDaaS), and mainframe technologies. Attain the next level of business excellence with unparalleled cloud benefits. When you work with us, you can: Drive agile innovation with cloud-native technologies. Unlock new growth avenues with our strategic partnership. Achieve faster time-to-market, agility, and scalable cloud transformation. Enable automation across IT service delivery and support with programable infrastructure and built-in accelerators. Enable a heterogeneous ecosystem that brings cloud-native and legacy applications together under one cloud. Gain a sustainable competitive edge and protect existing investments by harnessing ecosystems while exploring newer technologies and business models. Create the future you believe in by partnering with TCS Enterprise Cloud. Drive innovation and augment your growth and transformation with our business acumen, industry expertise, global ecosystem alliance and partnership, and technical proficiency. Ace the digital economy and strengthen your prospects of becoming a future-forward enterprise by leveraging our rich domain excellence, contextual knowledge, and global leadership position. Our 360-degree industry-specific solutions help you reap exponential business value, accelerate time-to-market, and catalyze your growth and transformation plans by harnessing ecosystems through a resilient, innovative, and unified hybrid platform. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height
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Drive value with an intelligent data platform on cloud

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compliance. Our "ready-to-configure" embedded analytical models powered by AI and ML fast-track contextual business intelligence. Enterprises keen to take advantage of or monetize this enriched data can avail of marketplace capability with our solution on TCS Enterprise Cloud. Further, TCS' contextual knowledge of businesses allows us to deliver the platform with the right data ingestion strategy, data transformation, and data fabric, which is essential as customers implement their data strategy. Drive data transformation, innovation, and growth with iDaaS. We help you reap exponential business value by catalyzing growth with technology-enabling data modernization on a resilient, secure and fully managed cloud platform built with our years of accumulated industry-contextual expertise and seamless delivery experience. With iDaaS, you can: Get a competitive edge with data intelligence on a secure and fully managed cloud platform. Accelerate your business value with our "ready-to-use" AI-ML-driven advanced analytical models. You can drive data-driven business decisions that enrich customer experience, improve employee satisfaction, and overall organizational efficiency. Create new business avenues through data monetization with our intelligent data platform Fast-track innovation and achieve shorter time to market with ready-to-use AI and ML-driven business intelligence on customer behavior. Grow securely as our cloud-enabled and domain-aware data platform is built on robust security practices managed end to end by TCS. Create the future you believe in by partnering with TCS Enterprise Cloud. Let us look at some of the unique use cases in this space. Climate-based analytics basis earth satellite imagery can help us understand the impact of climate change, changes in natural water body, contamination of water body due to forest fire, and accordingly derive solution and assess the impact of on-going intervention. Satellite-based imagery can enable weather-based agricultural claims fraud detection, creating agricultural loan propensity basis rain/climate prediction analysis. End-users' data has become a crucial reference point for business decision-makers to predict consumer behavior. This data is helpful in deriving insights that are useful for enhancing customer experience through the curation of products, services, collaboration and initiatives such as loyalty programs tailored to users' needs. TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ======================

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hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. The Challenge TCS Solution Benefits Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Accelerate provisioning and reduce time-to-market with TCS DBaaS solution You have these already downloaded We have sent you a copy of the report to your email again. Traditional databases running on dedicated servers and storage create an inflexible ecosystem that is cumbersome and time-consuming to manage. In addition, most organizations continue to use multiple databases that run in silos. This makes it challenging to perform day-to-day database management, ensure compliance checks, and improve security management. A scalable and secure cloud database management system that helps reduce mundane administrative tasks and speeds up time-to-market for applications is crucial to accelerate the development of cloud-native applications. Tata Consultancy Services' (TCS') Enterprise Cloud Platform Database-as-a-Service (ECP DBaaS) is a fully managed DBaaS solution that helps minimize mundane database management work. Built and accessed through TCS' Enterprise Cloud Platform, the highly scalable and secure solution encompasses database provisioning, administration, monitoring, management, and backup. TCS' Database-as-a-Service offers holistic support at lower TCO to accelerate cloud native application development. In addition, it ensures privacy and data control while providing services such as upgrades, patch management, performance tuning and migration. The key features of the solution include: TCS Enterprise Cloud Platform: Accelerating Application Modernization TCS enterprise cloud services Hybrid cloud strategy Drive value with an intelligent data platform on cloud ===================== ----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/ enterprise/solution/tcs-enterprise-cloud-platform ----- =====================

TCS Enterprise Cloud Platform

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development to integration, data management, and analytics, makes it a powerful and mature platform for mainstream enterprise adoption.   We offer a gamut of flexible, end-to-end full-stack services with robust modernization capabilities that can help enterprises power their transformation journey. Our broad range of PaaS and app modernization solutions include: Container-as-a-service: Reduces the application delivery cycle, improves business agility, and enables seamless deployment, management, and scaling of container-based applications, clusters, and services with Container-based virtualization. Database-as-a-service: Supports both structured and open-source databases with flexible engagement models. Workspace-as-a-service: Creates next-gen digital workplace with secure, simplified access and control of virtualized desktops, apps, and data across any device or platform on the cloud. Big data platform-as-a-service: Catalyzes business transformations by helping enterprises develop a leading edge while processing, evaluating, and managing vast data. Digital business experience monitoring-as-a-service: Identifies and resolves performance problems proactively before they affect end users and disrupt revenue-generating service. SAP HANA on cloud: Accelerates enterprises' ability to deliver innovations. Our full-stack managed SAP services ensure a smooth and quick transition to the cloud. Blockchain-as-a-service: Aids in developing and deploying blockchain applications through a pre-configured   environment. Workflow-as-a-service: Creates automated and configurable workflows that provide several out-of-the-box options to orchestrate automated business processes, tasks, and workflows. High-performance computing accelerated AI & analytics: Provides a single, converged end-to-end solution for training AI, ML, and deep learning models in the same heterogeneous compute environment as high-performance computing simulation workloads. App modernization: With a focus on enabling enterprises to respond faster to market needs, our strategic offerings include Application design, development, and support combined with containerization and APIfication. Experience the dual power of PaaS and application modernization to catalyze business transformation like never before. Drive agile innovation with cloud-native technologies and offer supreme end-user experience. Enable automation across IT service delivery and support with programable infrastructure and built-in accelerators. Gain a sustainable competitive edge and protect existing investments by harnessing ecosystems while exploring newer technologies and business models. Achieve faster time to market with agility while enhancing compatibility. Build the ability to develop cloud-native apps and improve security. Unlock new growth avenues with our strategic global partnership ecosystem. PaaS and application modernization enhance performance, velocity, and seamless collaboration. Partner with TCS to leverage the key differentiators: Ready-to-implement solutions that allow you to focus on your core business. Our holistic sustainability approach enables you to attain your goals faster with greater resiliency and security at all levels. Intelligence first is a motto for us. Our programmable infrastructure and built-in accelerators enable big data, machine learning, AI, and automation across the entire IT landscape. Accelerating modernization by seamlessly enabling Bring Your Own License (BYOL) for your applications. Our rich industry experience, domain expertise, and deep contextual customer knowledge help clients accelerate their growth and transformation journey. TCS Cognitive Document Processing on AWS

Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ===================== ----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/white-paper/automotive-industry-data-innovative-solutions ----- =====================

Mainframe modernization maximizes value

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(Ted) Mina Head, Cloud Strategy and Transformation, TCS You have these already downloaded We have sent you a copy of the report to your email again. Millions of business transactions requiring huge volumes of data are executed on mainframe platforms. New processors and chipsets in conjunction with native virtualization, and container technologies have enabled enterprises to continue to leverage their existing investment on mainframes. Messaging solutions for message exchange between mainframe applications and services hosted on cloud, and solutions that integrate mainframe workloads and data on-premise with digital systems of engagement on public cloud have helped modernization efforts. At operational and tactical levels, mainframe utility pricing models, license models, repurposing and processing through APIs will always trigger enterprises to continuously invest in the optimization effort of mainframe application workloads. Longer time to market, inadequate skills, increase in total cost of ownership, and inflexibility to rapidly launch experimental workloads to support innovation plague enterprises that have mainframe footprint with legacy application portfolios. On the other hand, enterprises that are not risk averse, go the modernization way riding on cloud-native services. They enjoy higher productivity and business agility, stronger business sustainability, faster time-to-market, and lower operating costs. A comprehensive 10R guidance framework can help enterprises to apply best practices and categorize the mainframe application portfolios. This framework acts on key input parameters such as mainframe application portfolio's business value, technology obsolescence, life-cycle stage, roadmap plan and business criticality levels. It also helps categorize the mainframe application portfolios that are required to be: Enterprises can adopt a multi-horizon approach to successfully modernize mainframe applications. Horizon 1: Building the digital core Horizon 2: Transforming business models Horizon 3: Building sustainable businesses million by 2028 45 of the top 50 banks 8 of the top 10 insurers 8 of the top 10 telcos 7 of the top 10 retailers 4 of the top 5 airlines Modernization and cloud transformation help reduce operational as well as upgrade costs. The approach to mainframe modernization should cover end-to-end phases such as advisory, strategy definition, discovery, assessment, design, implementation, and change management. A key steppingstone for mainframe modernization journey is systems integrators and service providers who work jointly with key business, IT, and finance stakeholders of enterprises for creating: We recommend an overarching crawl-walk-run approach for successful mainframe application modernization. Crawl: Execute the pilot application modernization and migration for less critical applications. Walk: Execute the first wave of business-critical applications within line of business (early adopters). Run: Establish and run the industrialized factory model for modernization for executing parallel projects for cluster of mainframe applications across line of business and business segments. Mainframe modernization efforts should be tailor-made to specific industries. Automated discovery, migration, and design tools, coupled with industrialized factory approach, are the need of the hour to address the scale, complexity, and volume of application components for accelerating the delivery of legacy application modernization and cloud transformation. Tracking business value realization through value measurement framework is the key to measure the success of application modernization and cloud migration initiatives. With this approach in mind,

finding the right partner to drive the complexity of the enterprise transformation is key for accomplishing business objectives. Evolving legacy application workloads from mainframe to cloud with a risk-adjusted approach enables the enterprise to thrive as they meet their purpose-led growth business objective. Unleashing the power of AI for business 01. TCS and AWS Cloud We bring you the best of TCS and AWS to help you accelerate digital transformation and realize a clear path to value with continuous innovation on AWS Cloud. 02. TCS and Google Cloud Learn about the TCS-Google Cloud advantage and how our services can help companies achieve superior business value from their cloud transformation initiatives. 03. TCS and Microsoft Cloud Read how TCS and Microsoft Cloud's strategic partnership helps enterprises drive their edge-to-cloud transformation and deliver greater business outcomes. 04. Enterprise Cloud With a future-ready hybrid cloud strategy and innovative cloud services, TCS helps clients gain a competitive edge and business agility.   TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud TCS Digital Mortgage Suite: Driving Growth with Better CX No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Writing the code of AI ethics

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know. Cloud migration helps Foxtel TCS SAP Application Migration to Google Cloud Data and AI Services on Google Cloud to fast track data modernization TCS Recognized as a Leader and a Star Performer in System Integration Capabilities on Google Cloud by Everest Group TCS' Industry Solution on Google Cloud to Empower Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height =====================

Serverless Computing: A Compelling Opportunity for Today's Digital Enterprise

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Accelerating Business Value with Cloud as the New ERP

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or quicker time to market. Today, cloud platforms have become core to an organization's innovation ecosystem delivering accelerated value by driving new business models. The global pandemic has also highlighted the role of cloud in enabling business resilience, accelerating its adoption further. What ERP was to digitization, cloud is to digitalization. A couple of decades ago, enterprise resource planning (ERP) solutions became the backbone of a digitized enterprise and reoriented business processes along the way. Cloud is doing the same today, becoming the unifying digital fabric of the enterprises.   An illustration that shows how cloud is accelerating enterprises' digitalization just like enterprise resource planning (ERP) solutions drove enterprises' digitization a couple of decades ago. By allowing cross-industry innovation, new business models, and purpose-led ecosystems, clouds are helping companies achieve scalability, agile innovation, superior customer experience, and perpetual value creation at speed. The transformative power of cloud technologies has various dimensions: - Cloud has modernized the entire tech value chain. Right from newly minted technologies such as blockchain to legacy mainframes, everything is now being conceptualized and enabled on the cloud. - It has driven the entire mindset shift from 'ownership' of assets to 'consumption' through pay-as-you-go models, making it a catalyst and driver of business model innovation. - Ecosystems are born in the cloud. The ecosystem enablement that cloud provides catapults an organization towards exponential business value. - Cloud underpins all the recent business and technology paradigms such as agile and machine-first. For enterprises with an innovation-led transformation mindset, the business value derived from cloud is broadly along three lines, which together drive continuous transformation: Scale and resilience The flexibility that cloud enables allows businesses to achieve fit-for-purpose scale, which in turn ensures resiliency in operations as companies can expand or contract the technology capabilities to suit the market requirements at speed. With the IT infrastructure modernized through cloud-native apps, businesses can configure IT to adapt for business goals quickly. Agility and innovation The speed to value and configurability allow businesses to experiment with innovations at all levels - business models, operating models, products and services. From offering an add-on benefit in an insurance scheme through a third party to collaborating with a supplier for a last-mile customer connect, the agility provided by cloud gives businesses the capability to experiment with new ventures. The massive shift in operating model forced by COVID-19, where companies had to enable remote working for their employees, recalibrate supply chains and find new customer channels, was made possible through cloud. Exponential business value Cloud capabilities are central to unlocking the promise of artificial intelligence. Right from embedding and gathering data from every function and application to using IoT and edge computing, cloud provides the basis for latest innovations in human-machine collaboration, enabling business value realization at various levels. Realizing the cloud potential Aligning business strategies with a coherent approach to a cloud implementation holds the key to deriving exponential value. The process requires: While digital accelerators optimize the journey to cloud and ensure a cloud-native infrastructure and approach, it is important to customize cloud solutions to business requirements specific to an industry for a close alignment with business goals. An automation-first or a Machine FirstTM approach ensures maximizing the

digital opportunity inherent in Industry 4.0. The current wave of cloud sets the stage for continuous transformation that is set to take businesses to new heights. To know more about our cloud capabilities, click here . TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height
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Getting the most out of IoT data with an effective Lifecycle Management Strategy

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again. IoT Data Lifecycle Management Strategy. Gartner predicts 25 billion connected 'things' will be in use by 2020. However, despite its unlimited potential to enhance lives and technology, the Internet of Things faces security and privacy concerns. In this whitepaper, IoT experts describe: TCS Cognitive Document Processing on AWS Empowering Centrica Customers with Energy Consumption Insights TCS FinOps Transformation for Google Cloud Scaling Success: Bringing Microsoft 365 Copilot to Enterprises Theme Font size Line height =====================

The Proliferation of Cloud Services - A Global Look at the Current Cloud Deployment Trends and Approaches

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across TCS. Discover our press releases, reports, and company announcements. CLOUD STUDY   A Custom Technology Adoption Profile Commissioned By TCS | July 2017 You have these already downloaded We have sent you a copy of the report to your email again. Digital disruption is impacting businesses in every industry and today's technology-enabled customers are empowered and highly demanding. To meet the needs of these global digital customers, organizations must transform into digital businesses – they must become increasingly agile, flexible, responsive and efficient. But traditional IT systems too often make digital transformation difficult. CIOs and other senior IT decision makers progressively seek to augment and update traditional IT systems with a range of cloud services, cloud delivery models, and cloud-native technologies. Thus helping businesses to move faster, save time and money, and deliver highly differentiated customer experience (CX) in order to win, serve, and retain their most important customers – and to remain competitive. Check out the webinar on "Five Steps to drive Digital Transformation with Cloud" that was presented by Forrester Analyst Dave Bartoletti along with TCS Global Head for Public Cloud and Hybrid Cloud, Aditya Nagarajan   Multi-cloud, Hybrid, or Repatriation: The Future of Cloud Adoption Cloud 2.0: Empower Businesses with an Innovation-led Transformation Adopting FinOps Practices for a Successful Cloud Cost Management Walking the Path of Cloud Native for Enterprise Digital Transformation Theme Font size Line height =====================

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Make Cloud-native Tech Work for Your Business

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Transforming businesses with mixed reality

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training constructs. The idea is to save costs while providing immersive employee experiences, leading to greater satisfaction and higher retention. In customer service, organizations are looking to improve their 'first time fix' metrics to enhance the efficiency of their in-field technicians and improve overall customer satisfaction. Largely, more organizations are concerned about the environmental impact of their businesses and finding ways to improve their ESG (environmental, social and governance) scores and reduce their carbon footprint. In the reality-virtuality continuum, MR lies right in the middle. The experiences on the spectrum differ on a wide range from superimposing funny filters on our faces in online chat applications to full-blown VR experiences that are completely cut off from immediate user environments. AV has minimal use of real objects in the digital environment and AR on the other hand, tends more toward reality and can annotate virtual elements on top of real objects. An image showing where MR lies in the reality-virtuality continuum—right in the middle. Compared to AV, which has minimal use of real objects in the digital environment, and AR, which tends more toward reality and can annotate virtual elements on top of real objects, MR strikes the right balance. It offers experiences that are highly immersive while not completely cutting off users from their immediate physical environments. On the other hand, MR typically uses digitally created objects such as holograms, which are contextually overlaid on physical objects. Users interact with these holographic elements through MR headsets to trigger changes in real objects and vice versa. The MR experience is highly immersive and holds tremendous promise. As it is tactile users can touch and feel the icons, images, and other objects projected before them in a virtual plane. The 3D plane works like a touchscreen that can be tilted, moved, and rotated over 360 degrees. The experience is also motion-tracked–it moves according to the user's viewing angle and position. Driven by exciting prospects, several technology companies are building native support for MR in their operating systems. Apple has ARKit, Android offers ARCore, and Microsoft Windows has developed the MR platform. The developer community is now amply supported with software development kits that enable them to build next-generation MR experiences using various devices. The number of head-mounted display (HMD) units available in the market is increasing by the day and contributing to the growing popularity of MR experiences. Some of the leading HMDs are Microsoft Hololens, Sony SmartEyeGlass, and Magic Leap. Given the versatility and efficiency of MR, several industries have started to test and implement solutions to solve their day-to-day problems. Some of the sectors that majorly benefit from MR are: Manufacturing and utilities: Preventive and predictive maintenance on the field is a growing requirement in these sectors. With remote collaboration tools and connected worker experience, MR can provide contextual overlays to get insightful information of real-world devices and machines. This helps remote workers to visualize complex circuitry or workings of machines to fix issues in the first attempt. Features including video calling and annotating offered over mobile devices enable remote collaboration that is effective and inexpensive. HMDs enhance this interaction by giving technicians an immersive experience. They can fix faulty equipment while talking to remote experts and simultaneously pulling up related documentation, viewing relevant help videos, and accessing troubleshooting manuals. The illustration shows how industries, particularly manufacturing and utilities, are capitalizing on MR.

Companies are finding various applications for MR. These include remote collaboration; training; remote customer service—all of which also helps people save time by cutting their travel time. As MR allows contextual overlays to get insightful information of real-world devices and machines, it helps remote workers to visualize complex circuitry or workings of machines to fix issues in the first attempt In recent times, various MR themes including remote collaboration and contextual overlays are being used to design and prototype complex machines, structures, and contrivances. Organizations are using MR to simulate and test complex assemblies of components. Innovative factory, store, and warehouse layouts are being realized with MR to effectively use available space. Healthcare: Telemedicine gained momentum in patient care during the COVID-19 pandemic. The methodology enables doctors to triage, diagnose, and treat patients remotely through mobile devices. MR in healthcare takes this experience to the next level. Medical teams comprising specialized doctors, clinical staff, and administrators, who are physically located across multiple hospitals and other locations, can collaborate seamlessly, exchange ideas, and recommend treatments. Before or during surgery, specialist doctors can superimpose 3D views of MRI or CT scans on HMDs or mobile devices to better understand the case and improve precision, thus reducing unnecessary interventions. Contextualized conversations can help the performing surgeons to take informed decisions. Patients in rural and semi-rural areas will then be able to get quality healthcare services closer to where they live, thereby reducing costs, saving time, and speeding overall recovery. Education: MR is all set to change the very definition of classroom in the education sector. Remote collaboration among teachers, industry experts, researchers, and students will improve the aspects of experiential learning. 3D content with contextual overlay helps to better understand complex topics such as human anatomy, machine design and prototyping, and space exploration. Virtual study tours will help students visit ancient sites and study artefacts without venturing out to the actual places. Practical and hands-on training can make students job-ready at a faster pace. Banking, finance, and insurance: MR offers a better alternative to filling reams of paper-based or online forms, in-person verifications, cumbersome workflows, and impersonal problem solving offered through chat bots. Mobile-based MR apps assist customers to easily navigate through complex procedures with real-time guidance from personal bankers. The relationship executives handhold users with annotations, markers, and relevant documents to complete the otherwise tedious processes. Similarly, using MR apps, insurance assessors can remotely guide customers and gauge damages caused to properties, thus eliminating the need for physical site visits, and ensuring faster claims processing. MR can transform the way personal wealth of high worth individuals (HNIs) is managed. HNIs can contact wealth managers from anywhere and get an immersive experience from holographic dashboards. They can get insightful and actionable information to make timely decisions regarding their investments. Enterprises have only managed to scratch the surface of opportunities that MR offers. They have started to engage customers with attention-grabbing experiences to stand out from the competition. MR is expected to be a catalyst in converting customer engagement into loyalty. Businesses have hence started making commensurate investments in the technology. Commercial use cases that are forecast to gain the largest investments by

2024 include training ($4.1 billion), industrial maintenance ($4.1 billion), and retail showcasing ($2.7 billion), states IDC. Much of the investments in AR and VR is expected to be driven by the commercial and public sectors. As the use cases proliferate, MR experiences will be invariably present in every walk of life and devices so integral that they would extend human senses beyond the dimensions of time and space. Multi-cloud, Hybrid, or Repatriation: The Future of Cloud Adoption Cloud 2.0: Empower Businesses with an Innovation-led Transformation Adopting FinOps Practices for a Successful Cloud Cost Management Walking the Path of Cloud Native for Enterprise Digital Transformation No matter where you are on your cloud journey, we can help you get maximum value from it. The reality-virtuality continuum is a spectrum that has the real world at one end and the virtual realm at the other. Between these two ends are various digital experiences that use a combination of real and virtual objects to various degrees. These experiences have been enabled by technologies such as augmented reality (AR), augmented virtuality (AV) and virtual reality (VR). After several false starts over the years, these technologies have finally become commercially viable. The most promising of all the simulated reality technologies is mixed reality (MR), which is built by using digital objects and allows interactions between the virtual and the real world. This paper discusses various use cases of MR across industries, including manufacturing, utilities, healthcare, and education. It also lists some of the current technologies in the market that help build MR experiences. Theme Font size Line height
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Cloud Value Convergence for Businesses that Run on SAP

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Cloud 2.0: Unleashing the next wave of business innovation

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7 MINS READ You have these already downloaded We have sent you a copy of the report to your email again. Driving game-changing innovation to turbocharge enterprise growth and transformation That there is no digital strategy without a cloud strategy is a given in today's business world. We would go beyond that to say there is no business strategy without a cloud strategy. Cloud technologies have become a mainstay of an enterprise's agenda and key to achieving sustainable growth. As a unifying digital hub that brings multiple other technologies to life, cloud has accelerated digital and business transformation over the years. The way entire economies shifted to cloud-based, contactless ways of buying and selling during the pandemic is proof enough. The next big wave of business innovation, growth and transformation that's powered by cloud—what we call Cloud 2.0—is more about addressing what businesses need to achieve their purpose than it is about IT infrastructure. It's about driving game-changing innovation and ecosystem synergies between industries. Central to this Cloud 2.0 transformation is "innovation at the edge". Exploiting the power of cloud across applications, data infrastructure, machine learning—all at the edge. Think data processing right where the action is happening—at a production line or an offshore wind farm instead of a central command point. Indeed, the true impact of Cloud 2.0 can be seen in how it enables the next level of edge computing, artificial intelligence (AI) or the Internet of Things (IoT) for business innovation. We see the cloud-led digital transformation playing out over three horizons. First, organizations focus on modernizing the core technology (infrastructure, applications, and data) while migrating workloads to the cloud to achieve better elasticity and resilience. In the second stage they use cloud-native capabilities for business innovations. This horizon is significantly driven by innovation mindsets and integration of best practices from across industries into an operating model. A higher-order transformation and more challenging to achieve, the third horizon is about driving exponential value by orchestrating or participating in horizontal ecosystems.   An illustration showing the three horizons to purpose-led growth with cloud. The first horizon is about building a robust digital core with cloud; the second is about innovating business models with

cloud and other new technologies; and the third is about transforming, growing, and creating perpetual value by participating or orchestrating purpose-led cloud-based ecosystems. We believe that many large enterprises are traversing the second horizon today. With a strong digital core in place, companies can use cloud to extend existing products and services to drive growth. They can reach consumers in new ways by incorporating additional digital channels. They can gain ground-breaking insights through expanded use of intelligent analytics with cloud. They can reshape business processes to deliver greater efficiency and better customer and employee experiences. And fueled by cloud-native capabilities and AI, machine learning, or low- or no-code solutions, they can create an environment of agile innovation where anybody with a compelling idea can turn it into reality. In Cloud 2.0, technology is not something to adopt, but a strategy for business transformation and growth itself. If cloud was earlier seen as a way of future-proofing enterprises' technology infrastructure, today it's a means of future-proofing the business itself. Cloud technologies were first seen as a means of building resilience and lowering costs through models like pay-as-you-use. Today, they are recognized as a way to achieve faster speed to market, a quicker response time to customers, and rapid innovation and new business model development. The native capabilities of cloud hold an exponential potential for business innovation and growth—companies have only realized a small fraction of the possibilities. While today's cloud workloads represent just 20 to 30 percent of what the potential could be, the transformative power of Cloud 2.0 is already on display. It can already be seen across many areas: Simply put, Cloud 2.0 empowers businesses with an innovation-led transformation mindset that helps them leap to the future. Leveraging cloud-based ecosystems to achieve a purpose-led, higher-order transformation As companies mature in using cloud-native capabilities to refine innovative business models, they prepare themselves for a purpose-led, higher-order transformation in the third horizon. The pandemic reinvigorated the discussion around purpose, with more and more organizations reflecting not just on their economic objectives, but the overall reason for their existence. Many have made it their goal to contribute to a better future, whether it's by fostering healthier communities or nurturing our planet for future generations. And going beyond lip service and tag lines, many are ensuring purpose is being baked into their operating and business models. We have found that sustainable, purpose-led businesses are shifting from delivering point-products or point-solutions to meeting holistic purposes. For this, they are open to collaborating with competitors and partners across industries, government, academia, startups, and others, often through platform play. Take the case of Vitality—it's no longer just a medical insurer, but also an orchestrator of wellness. One of Vitality's programs enables their diabetic customers to track activities using an Apple watch app and reap a reward in the form of lower insurance premiums if a certain goal is met. Damen Shipyards, a Dutch shipping company, is repositioning itself as a maritime solutions provider rather than just a shipbuilder. Leveraging a connected vessel platform, it shares and uses data from its partners in the maritime ecosystem to enable cloud-based predictive maintenance, provide access to remote services, and ensure up to 12% savings in fuel. The energy company Total is another case in point—it no longer just produces and sells fuel but is reinventing itself as a responsible energy major, providing affordable, reliable, and clean energy. Each of these

companies has set in motion a transformation, led by cloud and other technologies, to future-proof themselves. "Boundaryless cloud" is truly opening a world of possibilities—giving companies the ability to transcend not just enterprise boundaries, but also industry boundaries. In other words, they can look at innovations in completely unrelated industries and adopt those innovations for their own purposes, making themselves ever more relevant to their end customers. Combine it with a strategy to continuously invest the gains from cloud—be it savings from hardware and development or from cloud-enabled automation and data analytics—to fuel greater innovation, and organizations would be sure to shape a greater future for themselves. As organizations progress along the cloud continuum toward the third horizon, they can unlock exponential value for themselves and for their partners in their ecosystem. Australia's energy market operator AEMO has done this by transforming the energy market in Australia. Through a big data and AI-infused metering data management solution built on cloud, AEMO could move from a 30-minute settlement of buying and selling energy to a five-minute settlement (5MS) and, in the process, help smaller renewable energy providers compete in the market. Despite some excellent examples, we're still a few years away from realizing the potential of cloud-based ecosystems. To get there, what's required is a shift in thinking. Collaboration is key, even with competitors. By creating or participating in ecosystems that catalyze cross-domain innovation with cloud-based platforms, enterprises can chart the path to perpetual value creation. The promise of Cloud 2.0 is in driving innovation for businesses and companies must start their journey now to soar in the future. Get it first-time right with a cloud business case model TCS Partners with AEMO to Transform the Energy Market in Australia FinOps framework for cloud cost management and optimization AI-powered Business Transformation: What the Future of Business Holds No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height

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Multi-cloud or hybrid: What's next for cloud adoption?

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the technology can support business growth and scalability. While the lift-and-shift strategy is commonly adopted, it comes with its own set of challenges: According to the Google Boardroom Stats report, "72% of cloud decision-makers view digital transformation as something more than a simple lift-and-shift exercise where systems are moved from data centers to the cloud", and the once-favored lift-and-shift strategy for cloud migration has frequently not lived up to its promise. Reinforcing this, a substantial 72% of cloud decision-makers now view digital transformation as a process that transcends the basic lift-and-shift approach. Enterprises facing the challenges mentioned above are reconsidering their decision to move to the cloud. Therefore, they are repatriating their data by either moving entirely from the public cloud to the on-premises data center or moving only certain workloads back, thereby adopting a hybrid approach. Cloud repatriation is a strategic decision that necessitates a thorough evaluation of the workloads in use. A complete retreat from the cloud is generally not advised. While the prospect of familiar territory and increased control may be appealing, it can stifle innovation and growth and negate the benefits of the cloud. Hybrid cloud will continue to be a primary strategy for most large enterprises, with on-premises and cloud environments working in harmony to meet business needs. In this context, repatriation would be more about repurposing select workloads rather than completely abandoning the cloud. Why multi-cloud strategy continues to be important: As enterprises contemplate repatriation and the shift towards a multi-cloud strategy, it is crucial to anticipate and prepare for the challenges that lie ahead: Cloud repatriation isn't a sign of retreat but a strategic realignment. Businesses are fine-tuning their workloads, selectively migrating certain applications back to on-premises environments. The hybrid cloud strategy, a blend of enterprise infrastructure management experience and cloud capabilities, continues to emerge as a game-changer. It is a response to the modern IT landscape's demand for agility, scalability, robust security, and rapid innovation. While multi-cloud might not be the go-to choice for many teams initially, circumstances such as mergers, acquisitions, and innovations can make it inevitable. Hence, proactive planning for this eventuality is more beneficial than avoidance. Implementing a multi-cloud strategy calls for a robust architecture, firm guiding principles, clear workload distribution guidance, a reference architecture for adoption, and strict governance. This approach ensures efficient IT management while keeping costs under control. 1 Gartner Press Release, Gartner Says Cloud Will Become a Business Necessity by 2028, November 29, 2023, https://www.gartner.com/en/newsroom/press-releases/2023-11-29-gartner-says-cloud-will-become-a-business-necessity-by-2028 . GARTNER is a registered trademark and service mark of Gartner, Inc. Migration of Servers and Database to Azure TCS Cloud Migration Services for Seamless Digital Transformation Accelerating Data Warehouse Modernization on AWS Ensuring Customer Success Using Multi-cloud and SaaSification No matter where you are on your cloud journey, we can help you get maximum value from it. Theme Font size Line height ===================== ----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/cloud-capabilities ----- ===================== ----- Arcticle source ----- https://www.tcs.com/what-we-do/services/cloud/blogs ----- =====================

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Novolex reduces opex and drives productivity

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has enabled perpetual value from the business transformation, and TCS' unique approach has positioned the Novolex Shields business as a next-gen digital leader in packaging solutions. The initiative delivered business value by reducing one-time opex, driving ongoing SGA (sales, general and administrative) improvements, and shortening monthly and quarterly financial close cycles. It also enabled manufacturing productivity efficiencies and working capital improvements through inventory optimization, and increased sales margins and pricing effectiveness. All this facilitated an increase in M&A activity. What the client says "As our trusted implementation partner, TCS has helped ensure timely integration and business transformation that can empower Novolex as an 'intelligent enterprise' with leading solutions." Cloud strategy and transformation Consumer experience transformation Enterprise agility Innovation strategy and transformation Next-gen enterprise transformation Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height ======================

QIAGEN goes digital

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deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Futuristic e-commerce platform to reimagine customer experience for QIAGEN. You have these already downloaded We have sent you a copy of the report to your email again. QIAGEN needed feature rich online channel to sell highly specialized products. Customers in biotechnology tend to quickly outgrow traditional sales channels like e-mail and phone. QIAGEN wanted to engage with its large international customer base with a savvy and seamless online platform. They also sought to boost sales by migrating their specialized suite of products to a self-service web shop. The platform had to be convenient, user-friendly, and personalized while still supporting a wide spectrum of capabilities and the latest web store features. TCS leveraged SAP Hybris to deliver an enhanced e-commerce platform for QIAGEN. TCS tailored a transformative e-commerce solution for QIAGEN. For the platform's essential features, we used a Minimum Viable Product approach. This included businesses and technical processes, along with key adoption elements. Under business processes, we managed QIAGEN's exhaustive catalogue, pricing and payment, and order processing. Technical processes included Hybris Commerce, PIM integration, SAP integration, Salesforce integration, user interface, search and search engine optimization, and account management. Key adoption elements spanned integration testing, documentation, support, and training. How did QIAGEN create a multi-channel, feature-rich e-commerce platform in 6 months? We used an agile sprint methodology to speed up development and mitigate the risks of a geographically distributed team. We also scheduled deliveries in incremental stages, and provided end-to-end integration testing, user acceptance testing support, 24/7 support, an integrated toolset, and training sessions to QIAGEN. By expertly leveraging the SAP Hybris, we enabled QIAGEN to offer its customers a sophisticated shopping experience across every touchpoint. Cloud strategy and transformation Consumer experience transformation Enterprise agility Innovation strategy and transformation Next-gen enterprise transformation Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height ======================

Accelerating the journey to industry cloud: Enterprise-as-a-service (EaaS)

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cloud-first strategy? Is moving to cloud challenging? Finding the right model Why EaaS? Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Parthiv Shah Global Head, Cloud Strategy and Transformation, TCS Dhaval Jindal Consultant, Cloud Strategy and Transformation, TCS Niraj Pandita Consulting Partner, Cloud Strategy and Transformation, TCS You have these already downloaded We have sent you a copy of the report to your email again. Cloud provides enterprises a flexible, configurable, best-of-breed platform enabling them to scale and be ready to meet the demands of the new digital future. Most enterprise leaders have adopted a cloud-first approach for their digital transformation. Some of the key objectives that drive this are: An illustration showing the drivers of a cloud-first approach and the benefits organizations stand to gain from such an approach. Some of the drivers are customer and employee experience, resource and cost optimization, business operations efficiency, and deployment of new and emerging technology. Benefits from a cloud-first approach include personalized customer and employee experiences; the ability to leverage technologies such as AI, machine learning, IoT, and 5G at scale; automation of business workflows; and virtual collaboration and monitoring for location independent teams. Adoption of a cloud-first approach, thus, helps organizations jump-start organization-wide transformation. Yes, it can be challenging as enterprises must make a host of complex decisions while moving to cloud, including the choice of deployment models, service models, and migration options. Cloud deployment models: There is no one type of deployment model that is right for everyone and the choice (private, public,

hybrid and/or multi-cloud) depends on the specific needs of your enterprise. There are several approaches that factors-in to be considered: technology, operational, and cost fit. For example, a workload-centric or a bottomtrickles-up approach depends on the nature of workloads. An organization-centric, or a top down, approach, in contrast, involves a holistic view that considers business agility and growth, competitive differentiation, operational preferences, regulatory requirements, and CAPEX-versus-OPEX choices. Cloud service models: Enterprises, based on their business requirements, can choose the appropriate service model such as SaaS, PaaS, IaaS, CaaS. Each service model provides a different level of abstraction, and it is important to understand the nuances and how each of them can be leveraged for various functions to design an optimal strategy. Cloud migration options: With multiple options available for cloud migration (6R – repurchase, rehost, re-platform, refactor, retire, retain), the process of decision making and moving some or all your digital operations to the cloud can be overwhelming. To select the appropriate strategy, clearly define your need, analyze the current state, and outline the immediate, near-and long-term benefits that you seek from cloud transformation. A one-size-fits-all approach does not work in making these decisions as each enterprise has a unique management thought process, CAPEX bandwidth, savings accrual view, technical debt, and agile maturity. Ready-to-deploy, best-in-class containerized digital use cases are key enablers for the EaaS approach that can lead to 20-40% faster value realization through shorter planning, design and implementation cycles, better executive, and stakeholder alignment. These will help drive perpetual value realization for the organization. To untangle the complex decision-making process of choosing an apt appropriate cloud service model and deployment, you must establish a cloud-enabled business and an IT vision. The cloud transformation vision should translate to a reimagined operating model for each enterprise function. This approach has three steps: Establish a hybrid cloud and multi-cloud strategy with a specific cloud service model. Develop a business-aligned cloud migration and modernization roadmap with defined business case. Set up a cloud business office (CBO), a champion for cloud-enabled transformation management to maintain guardrails and manage realization of cloud value. To simplify the cloud transformation journey and achieve speed to benefits, you should adopt a 'unifying approach' or a 'cloud-in-a-box solution' called enterprise-as-a-service (EaaS). The EaaS approach is an opportunity to leverage decades of investments in digital solutions, cloud-native technology, and co-innovation with cloud service providers and other emerging technology providers. EaaS or the cloud-in-a-box solution involves industry-specific maps of business functions and processes with recommended cloud service and best-fit deployment models and cloud platforms. It helps cater to individual industry needs through customized variants. You can leverage the business process management (BPM) concept where an enterprise is modelled using related Level 1 business processes such as source to pay, order to cash, record to report, prospect to customer, plan to produce, and hire to retire. These business processes can be further divided to L2 and L3 sub-processes, which is then enabled by a digital catalog of use cases and mapped to a best-fit cloud deployment and service model. An illustration of an enterprise-as-a-service (EaaS) approach that drives speed to value, enables perpetual transformation, and accelerates cloud value realization. This approach maps business functions and related

business processes with the best-fit cloud deployment models and cloud platforms. It utilizes industry-specific solution maps; ready-to-deploy, best-in-class containerized digital use cases; contextual knowledge of digital solutions; cloud-native technology; and partnerships with hyperscalers to recommend an optimal path forward for the cloud transformation of an enterprise. For example, the manufacturing industry has various business processes such as plan to produce, hire to retire, record to report, order to cash and prospect to customer. This approach helps map the underlying L2 business processes such as demand planning, supply planning, environment, health, and safety, quality management to SaaS, IaaS, PaaS and CaaS service models respectively. This mapping can provide a jumpstart to the cloud journey leading to faster realization of cloud benefits. An illustration shows how an EaaS mapping of business processes would look like for the manufacturing industry. It maps business processes such as procure to pay, record to report, and hire to retire and sub-processes or corresponding processes including demand planning, supply planning, environment, health, and safety, and quality management to the best-fit cloud deployment and service models—whether it is software-as-a-service (SaaS), infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS), or containers-as-a-service (CaaS), respectively. Six principles to unlock value at a NewCo Novolex Evolves Legacy ERPs on SAP S/4HANA for Business Transformation Get it first-time right with a cloud business case model Three ways to think about the workforce of the future Looking to turn purpose into action? Theme Font size Line height =====================

Gain an edge with distributed cloud and edge computing

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center marketplace as a new edge option.   Mobile edge computing provides a highly distributed computing environment that can be used to deploy applications and services, as well as to store and process content near mobile users. It accelerates reshaping of teams through a managed umbrella of a single distributed cloud and operating model that integrates all the disparate environments. The existing infrastructure and operations personnel will work with the respective teams in DevOps, platform engineering and operations, or fusion. The time is now ripe to ride on the evolving capabilities of edge and distributed cloud to reimagine the future. To take full advantage of edge computing and distributed cloud, the following focus areas demand our close attention: Standards for edge interoperability: Facilitate an open-source governing body supported by large cloud service providers for accelerated edge adoption. Cloud and systems design: Understand how everything fits together. Try to predict and monitor system performance and compare attributes of different services and data models. Cloud skills with network, databases, and application architecture is key to adoption. Security: Recognize network security nuances such as data protection with authentication, encryption, and certification, while assessing the security profile of new devices and applications. Digital innovation: Explore and develop innovative digital use cases that deliver operating efficiencies and growth. Future businesses and societies will be crafted using digital innovations enabled by the cloud. Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height =====================

Collaboration for purpose-driven growth

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10 percentage points above industry average. The TCS 2021 Global Leadership Study revealed 58% of leaders, versus 35% of followers, include ecosystems when building their future strategy. C-suites increasingly recognize that the sharing and building upon the assets of ecosystem collaborators is a powerful means for growth and profitability. Therefore, to strive for greater prosperity in their business means purposeful growth, which can be achieved with the alignment of ecosystems. However, this can be complex task for two reasons. 1) Ecosystems evolve based on new business aspirations. 2) Identifying where business visions can intersect is tricky. Successful ecosystem collaboration—whether accessed through an alliance, joint venture, organic or inorganic growth—requires each collaborator to thoughtfully assess their goals, culture, and capabilities, and understand how this enables their future vision, and also identify the gaps. This insight then needs to be leveraged in the context of the ecosystem in which it seeks to join, and the companies within it. To ensure a good match in the ecosystem, the collaboration 'due diligence' approach should: Focus on confirming or denying a good match exists between the collaborators for mining and creating the synergies, ensuring all players help to fill the necessary gaps, or can in the future. Identify anticipated purpose-driven outcomes that can be achieved through ecosystem collaboration. Openly accept and enable necessary changes in business models, approaches, or strategies in order to make collaboration a reality. An illustration highlights emerging consumer and purpose-driven digital ecosystems where community, wellness, connections, resources, energy, mobility, and growth feature as economic agents. As companies around the globe revisit their purpose and, in turn, the measures by which they assess success and ensure their businesses' long-term viability, they are increasingly focusing on ecosystems and building upon the assets of ecosystem collaborators to create greater value. To best enable this, those that are part of this ecosystem need to take on certain roles. An anchor is responsible for 'orchestrating' the ecosystem, typically by providing the infrastructure or 'platform' on which the ecosystem operates. A partner brings a differentiated product, service, or capability (for example, customer relationship or best-in-class operational function) suited to the purpose of the ecosystem. All players bring or continuously strive for Lego-like infrastructures that allow the snapping and unsnapping of collaborators' assets and componentized capabilities employed by the ecosystem, as needed, for agile adaptation to market opportunities and threats. Ecosystems can drive new partnerships and business models that had previously not been on the horizon. Let's look at two examples of successful ecosystems that drastically changed the business trajectory. Pharmaceutical giant, Merck, whose mission is to 'invent for life', naturally fits within the wellness ecosystem, and places a priority on ESG when allocating resources and forming partnerships to ensure access to health and environmental sustainability. In pursuit of continually improving patient outcomes and reducing total cost of care, Optum Medical Benefits Management, a United Health Group company, partnered with the National Comprehensive Cancer Network to optimize cancer treatment through a unique point-of-care decision-support tool. An illustration highlights emerging consumer and purpose-driven digital ecosystems where community, wellness, connections, resources, energy, mobility, and growth feature as economic agents. As companies around the globe revisit their purpose and, in turn, the measures

by which they assess success and ensure their businesses' long-term viability, they are increasingly focusing on ecosystems and building upon the assets of ecosystem collaborators to create greater value. It is critical that corporations and all humanity identify our needed trajectory to find purpose and prosper. Re-ignited by the challenges of the COVID-19 pandemic, the longing for a sense of purpose has set a new trajectory for not only corporations but humanity as a whole. And collaboration, from alliance to acquisition, is the means for more rapid adaptation to an ever-changing business environment. Businesses that seek to survive for the long term must find or shine a bright light on their purpose and align their strategies and tactics to continually add value in what is projected to be the most transformative decade in all of human history. To paraphrase Spock from Star Trek, "live purpose and prosper". Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height ======================

Creating a living innovation portfolio

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innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Ashley Becker Managing Partner, Innovation Strategy and Transformation, Consulting, TCS Frank Diana Managing Partner, Futurist, Consulting, TCS You have these already downloaded We have sent you a copy of the report to your email again. Innovation is now a top C-suite priority. In our latest Global Leadership Study, covering more than 1200 global leaders across 17 industry sectors, we found that enterprises are expecting more than 44% of their revenues to come from new offerings. Innovation provides unprecedented opportunities, delivering differentiated value for a broader array of stakeholders in the ecosystem. Innovation can be of various kinds: Inside-out innovation: Spark and evolve ideas within your enterprise to quickly launch and scale new products, services, offerings, and business models. Outside-in innovation: Connect your customers to promising ideas, opportunities, and go-to-market channels to broaden horizons and enable growth. Innovation engine: Partner with your customers to continually refine a strong innovation foundation, including vision, governance, operating framework, and culture.   Let's talk about the components of the innovation journey. A broad and multi-dimensional spectrum of strategic foresight and insight provides enterprises with new perspectives on strategies, risks, and emerging forms of value. This spectrum of information helps enterprises understand driving forces, emerging scenarios, and trends to set context, make choices, and fuel innovation. Take it from a major European insurer who wanted a better understanding of products and services that would be ideal for an emerging post-retirement future. They collaborated with TCS to explore approaches to accelerate the foresight—innovation—opportunity journey. By enhancing their existing foresight function, the insurer gained fresh, informed perspectives, enhanced established foresight methods and strategies, and simultaneously broadened and deepened insights. They effectively reimagined the building blocks for an emerging post-retirement future, while considering its impact on current business and strategy.   Every innovation and transformational journey begins with the belief that it will make the world better. Rajesh Gopinathan By infusing strategic foresight with thought-provoking insight and an ability to continually 'sense and respond,' enterprises can sort through complexities to set a course forward, connecting a broader view of the future to key focus areas. They can better understand the potential impact of plausible futures and critical uncertainties on key organizational dimensions.   This, in turn, demands a deeply informed and reimagined view of the enterprise, with a tangible set of initiatives to drive the vision, enhance performance, and enable growth. A large Scottish government agency leveraged our strategic foresight and assets to provide a view of combined factors shaping the future of elder care, education, the environment, and the economy. The point of view on critical driving forces were beneficial to ideation sessions, where new value

propositions for enhanced community service were identified. The agency then created a framework prioritizing high-value and high-impact opportunities, such as creating new service delivery models for local government services, emulating digital twins of cities, and establishing a data ecosystem for the local government. The initiative for data sharing and access was subsequently rolled out to 32 local councils in Scotland, leading to better outcomes and services for citizens.   A sense-and-respond paradigm enables real-time adjustments, addressing the dynamic nature of organizations, the world, and the emerging future. Adjustments address changing priorities, emerging resilience needs, investment decisions, and feedback from real-time experimentation and minimal viable solutions. The innovation portfolio connects the journey between future-back thinking to experimentation and execution.   By experimenting with minimum viable products (MVPs) or minimum viable ecosystems (MVEs) in short-duration time frames, enterprise leaders can validate outcomes, market viability, and stakeholder reactions. For example, a large Scandinavian financial services group, looking to enhance customer experience and capture a younger audience, developed a suite of personal financial tools in partnership with TCS, leveraging TCS Agile Innovation Cloud and our co-innovation network (COINTM). The frictionless suite of solutions included location-based offers, digital onboarding, a personal finance manager, invoice scan-and-pay, and a GDPR-compliant consent management system. The MVP was delivered in less than 100 days, and upon scaling, went on to quickly become the region's leading payment solution, capturing a majority of payments made in the Norwegian geography.   In the field of pharmacy, for example, it has become increasingly necessary for pharmacists and technicians to expand their operational skillsets to continue serving patients safely and quickly. Due to the pandemic, many retail pharmacies adopted digital health systems to provide virtual support for patients. In partnership with a large pharmacy and healthcare service company, TCS helped transform their Rx fulfillment system, exceeding the inventory-reduction target. Following a focused strategy for future growth, the new cloud-based pharmacy system enables increased automation, improved labor productivity, greater speed-to-market, improved patient safety, and overall increase in customer experience. Therefore, meaningful foresight, thought-provoking insights, a robust approach, a strong ecosystem, and forward-thinking technology capabilities can drive an enterprise to bring life to ideas at scale. To know more about consulting services Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height =====================

Rethink budgeting with a digital-first mindset

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forecasting engines can increase the speed and agility of the budgeting and planning process. Such an approach not only addresses short-term budgeting needs, but also revolutionizes the process by overcoming common budgeting challenges. Four key practices can help organizations adopt agile budgeting processes and overcome typical challenges. Realigning the organizational culture: Better leadership and management, starting at the board level, can help build a flexible, and agile budgeting approach. Many can relate to the situation of a large-scale organization implementing a program that is designed to alter the way its teams look ahead and forecast. Companies urge their budgeting teams to develop six-month forecasts in just one week by planning ahead in shorter cycles using an agile mindset of controlled experimentation and innovation. The forecasts are then consolidated in the second week and presented to the executive team in the third week. Such disruptive practices cannot flourish without the support of top leadership Begin with the end in mind: Understand the key drivers of success for the organization and maintain budgeting rigor around these drivers. Organizations generally begin building KPI dashboards based on the availability of data or current demand. These short-term agendas often fail to achieve a significant change in how companies operate. Focusing on a limited set of key value drivers, on the other hand, can help achieve better budgeting outcomes. Adopt a short-term mindset: Shooting for a full-year budget with more than 90% accuracy may not be the ideal way to approach budgeting. Instead, it helps to focus on flexible, iterative planning to increase accuracy. Shorter iterations and adjustments will increasingly help predict short-term events with more frequent forecasts. Focus on capability and knowledge building: For modern organizations, the ability to predict and rapidly respond without disrupting business as usual is a key competitive differentiator. It is therefore best to focus on building an optimized finance and budgeting process as a core capability, rather than evaluating the success or failure of each iteration. Eliminating redundancy and errors is the first step to a successful transformation. To begin, assess your current processes to identify areas that can be automated to improve efficiency and accuracy. Many of the current budgeting and forecasting practices are still largely manual and can be easily automated. Leveraging digital platforms that automate repetitive tasks, and blending them with AI and machine learning engines, can significantly accelerate cycle time. One of the leading global technology players improved its forecasting efficiency by more than 80% using technology and intelligent algorithms to tackle the more mundane and arduous tasks. But given the complexity involved in leveraging these technologies, few organizations can do this on their own. Striking partnerships with proven service providers can help companies not only access the right capabilities and avoid the typical pitfalls associated with such implementations but also accelerate time to market and ROI. Adapting agile budgeting and forecasting ensures flexibility and resilience. While letting go of traditional approaches can be disconcerting for business leaders, making a clean break with legacy procedures, using best practices and leveraging technology can set organizations on the path to success. A global technology players improved its forecasting efficiency 80% using intelligent algorithms to tackle the more mundane and arduous tasks. Harnessing digital forecasting engines can increase the speed and agility of the budgeting and planning process. Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive

innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height ======================

Get it first-time right with a cloud business case model

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a multi- or hybrid-cloud strategy. Based on priorities and workloads, many enterprises prefer multi-cloud approaches — that involve a variety of complexities: Billing and pricing models: Operational silos have caused ambiguity about the full opportunity value, measurement, and spend of multi-cloud approaches. Lack of standardization often lead enterprises to tackle several billing models and pricing structures, which are too granular. Choosing the best-possible combination—based on your enterprise use case and future vision—is not easy. New services and features: To gain a competitive edge, cloud service providers introduce new services, pricing models, discounts, and features adding to the complexity and demanding meticulous finance management processes around cloud spend. Cost overruns: Due to gaps in effective monitoring and unrestrained consumption, many enterprises are unaware of the nuances of cloud spend management until it is out of control. As much as 30% of cloud spend is wasted due to lack of transparency and governance. Additionally, the risk of not moving or making changes with a limited or siloed approach can lead to a much greater cost to the business, potentially stunting innovation and growth in the future.   Poorly planned migrations, latency in real-time analytics and IoT applications, and misconfiguration of cloud, and data breach or loss might result in enterprises' moving back or repatriating public cloud workloads to on-premise infrastructure or private clouds. How can you address such cloud complexities? The success mantra lies in adopting a holistic and tailor-made cloud business case model. A holistic approach to cloud business case looks past just cost reduction, towards productivity gains and increased opportunities. A typical cloud business case will need to demonstrate savings of IT costs and opportunities for revenue growth. During evaluation, consider the broader business objectives along with IT architectures, security, and operations—and financial implications. Your assessment should include the current and future state IT, total cost of ownership (TCO), hosting model, applications, and types of migration. The transformation opportunity must be identified, as well as the benefits from innovation, new business models, and productivity. The evaluation must also include identification of opportunities for revenue uplift and target state earnings before interest and taxes (EBIT). Today, the cloud model can be absolutely borderless. It transcends not just the enterprise boundaries, but also industry boundaries. Krishnan Ramanujam It increases operating margins, improves asset efficiency, and boosts environmental, social, and governance (ESG) effectiveness. What's more, it opens an entire gamut of actionable intelligence ecosystems, enabling innumerable opportunities for new business models and higher customer satisfaction.   They needed a balanced, simplified, localized operating model with an agile culture and a mobile-first, service-oriented customer experience to help grow e-commerce sales. TCS enabled the business case model for cloud transformation, demonstrating the opportunity to cut costs and improve productivity with better application performance and accelerated system response time. This, in turn, expedited time-to-market preparing the retailer to meet everchanging demands and new requirements. It also improved employee productivity and scalability of infrastructure to rapidly meet surges in customer demand, ensuring revenue growth. The impact spans multiple horizons of cloud transformation, business enablement, and business and technology innovation.   Choose a partner with a deep contextual knowledge of your business processes and thorough experience and

expertise in cloud hosting and migration. When starting on your cloud transformation journey, a trusted partner can help confidently make decisions based on extensive benchmarking research on industry success stories and best practices. The partner you rely on-should be able to perform a scenario analysis and arrive at a value map that sheds light on your future growth, profitability, and cash flow. FinOps for cloud cost management 01. TCS and AWS Cloud We bring you the best of TCS and AWS to help you accelerate digital transformation and realize a clear path to value with continuous innovation on AWS Cloud. 02. TCS and Google Cloud Learn about the TCS-Google Cloud advantage and how our services can help companies achieve superior business value from their cloud transformation initiatives. 03. TCS and Microsoft Cloud Read how TCS and Microsoft Cloud's strategic partnership helps enterprises drive their edge-to-cloud transformation and deliver greater business outcomes. 04. Enterprise Cloud With a future-ready hybrid cloud strategy and innovative cloud services, TCS helps clients gain a competitive edge and business agility. Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height =======================

A two step-approach to ransomware defense

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in serious financial consequences. For example, victim organizations are more likely to pay if they must adhere to the European Union's GDPR or China's new personal data privacy law because they would incur steep fines upon violation. Class-action lawsuits against companies that lose control of customer data introduces another hacker incentive. Cyber criminals also seek out victims who are technically vulnerable. Ransomware groups are an increased threat to organizations with lax network defenses, out-of-date or unpatched software, weak or nonexistent data backup, and poor staff security practices. (Yes, this is one reason why you must change your password at regular intervals). These frameworks should borrow best practices from NIST, ISO, and CIS standards. For example, the NIST framework has five elements: identify, protect, detect, respond, and recover. Enterprise-level security measures The context and motivations behind ransomware attacks are constantly evolving, understanding this is key. Good defense is rooted in security practices that keep attackers out of your system and limit their ability to move within the network if they gain access. Prepare your defenses in advance with regular, offline, and immutable data, systems, and configurations backups. Regularly test rapid recovery of digital assets to quickly restore operations if an attack occurs. To reduce the hackers' potential leverage, strictly adhere to regulations such as GDPR, ensure customer data is locked down, and segment networks to limit the spread of an attack. Don't forget to develop a comprehensive map of your enterprise data and craft a detailed incident response plan. As the saying goes, it's always better to be safe than sorry. Ecosystem defense strategy The combination of skills, experience, resources, information, and perspective from multiple organizations improves your defense against adversaries. This cooperative and ecosystem effort should be applied at different levels and may range from strategic to the tactical. For example, one of the priority recommendations of the Ransomware Task Force (RTF), led by the Institute for Security and Technology, is to adopt an internationally coordinated, comprehensive strategy to eliminate safe havens for ransomware operators. These security principles are most effective when applied in collaboration with independent and unbiased cyber security partners who can help assess enterprise and ecosystem-level security control gaps and risks, analyze results, and suggest ways to strengthen your cyber defense. Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height
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Parcel consolidation: The answer to last-mile logistics woes

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global markets POWERING ECOSYSTEM PLAY On your marks, get set, go Meet the authors Related reading Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. A joint research by TCS and Carnegie Mellon University Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ A joint research by TCS and Carnegie Mellon University You have these already downloaded We have sent you a copy of the report to your email again. - where goods are moved from transportation hubs to consumer homes - and significantly impact customer satisfaction. Last-mile deliveries are expected to: Grow by approximately USD 60 billion in the North American market between 2020 and 2025. Rise by 22% each year. The number of parcels will increase -- from 150 billion in 2021 to 260 billion by 2026. Demand in urban areas is expected to grow 78% by 2030. Without any intervention, this will lead to 36% more delivery vehicles in the US's top 100 cities. Think of the traffic congestion. "In the research, we developed a simulation of delivery data that reflects real-world environments. We developed algorithms and used sophisticated optimization software to find the best trade-off between delivery costs and storage expenses in each program." Dr. Willem-Jan Van Hoeve As a part of this joint research, we studied three consolidation programs: Assigned weekday—consumers receive all non-essential parcels once a week. Parcels that arrive after the assigned delivery day are stored until the following week. Assigned multi-weekdays—consumers receive all non-essential parcels on two assigned days each week. Parcels are held until the next assigned delivery day. Dynamic holding—carriers store non-essential parcels for up to three business days before delivering them to consumers. The study accounted for real-life constraints, such as limited

capacity at transportation hubs, fewer delivery vehicles, and the size and weight of parcels each vehicle can safely carry. The result? Parcel consolidation led to lower costs, improved sustainability, and greater customer certainty due to time-definite delivery. Game-changing cost-savings: Consolidated parcel deliveries that reduced stops are more cost-effective, provided each consumer receives more than one parcel per delivery. Here, each delivery costs only 20-40 cents more than standard delivery. Parcel storage costs also drop to approximately USD 0.04 per pound per day. Multi-weekday delivery: This option saves significant costs while serving a large population. It allows carriers to offer different consolidated delivery options to suit consumers' markets based on the number of packages delivered weekly. Enhanced environmental benefits: Consolidated deliveries will lead to significantly reduced carbon footprint. This also ensures environmental, social, and governance (ESG) commitments are met. Fewer deliveries translate to decreased fuel consumption, lower mileage, reduced emissions, and less traffic. Reduced failed deliveries: A pre-decided date and time for delivery lower the number of failed deliveries, where a driver must return to a house for a signature, but no one is home. Curbed labor shortages: The reduced number of deliveries enabled better capacity utilization, enhancing drivers' experience with fewer stops per shift. This makes delivery jobs more attractive and improves driver recruitment and retention. For many consumers, consolidated deliveries could be more convenient because they give greater certainty over arrival times. Time-definite delivery will become increasingly important as people embrace hybrid working which allows them to choose the days when they are at home to accept packages. It reduces the risk of missed deliveries, thereby lowering the risk of theft. By offering incentives, carriers can boost consumer participation in parcel consolidation programs. An impressive 81% of surveyed consumers are willing to receive all non-essential parcels on two assigned days each week in exchange for a gift card; 75% would sign up in exchange for loyalty card points. It offers compelling operational and environmental benefits in countries with mature economies, strong e-commerce markets, and high population densities, like the United Kingdom, European Union, Japan, China, Brazil, India, Argentina, and Colombia. Carriers and shippers could work together to consolidate deliveries, resulting in greater cost-savings and other rewards. When appropriate, they should collaborate not compete. For example, they could work together on the interstate and in the warehouse but compete at the point of demand or sale. and consumers are eager to sign up. We recommend carriers start by implementing pilot programs at their key last-mile hubs, without offering incentives for participation. Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height
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Essential elements of effective data governance

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governance framework customized for your business. A customized data governance framework should aim for the following: So, what can companies do to achieve these goals? What's clear is that companies need to protect their wealth of data. And leading cloud vendors are making it easy to do so. They offer tools for data discovery, data assessment, cataloging, data quality, and security. There are various data governance tools available in the market, such as Collibra, Informatica, Talend, and many others. Business leaders would benefit from weaving in a strong governance strategy into their digital transformation to ensure integrity and security of data, an imperative in today's world. However, before choosing any data governance options, organizations should clearly outline their overall governance framework objectives and components, set data priorities, and iron out any data complexities. There is no one-size-fits-all solution; the data governance strategy that's tailored to meet an organization's specific objectives and overcome their challenges will be a great asset—and accelerator—in an organization's digital transformation journey. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height ======================

FinOps for cloud value-conscious enterprises

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TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Dr Parthiban Chandrasekaran Enterprise Cloud Architect, TCS Radhakrishna Banavalikar Engagement Manager, Cloud Strategy and Consulting, TCS Niraj Pandita Consulting Partner, Cloud Strategy and Transformation, TCS You have these already downloaded We have sent you a copy of the report to your email again. Cloud bills can be difficult to comprehend. Billing reports generated by cloud service providers do not list charges against complex engineering and their financial implications individually—they are clubbed under one total charge. While that may be, it's not so difficult to understand that cloud cost is not the same for all deployments. Various application and infrastructure architectures come with different costs. So, it's vital to design the most cost-effective target state architecture factoring in cost for all phases of adoption from development to operations. It will be very difficult to achieve the stated benefits in the business case if the target state is not properly defined with cost benefit levers such as cloud-native solutions, modernized architecture patterns, no vendor lock-ins, and automated AI-based reporting, monitoring and recommendations. Cost management during cloud adoption and that at the cloud steady state can also become disjointed if the key success metrics of cloud adoption are not properly monitored during the transition and post adoption. This is where DevFinOps comes in. An illustration shows a path for cloud FinOps evolution in a cost-sensitive organization. It shows key milestones and challenges including cloud cost management and different perspectives of finance or technology teams, CEOs, and CIOs along the way. There are also key differences in various stakeholders' understanding of costs on-premises versus costs in the cloud. Balancing all these different views and requirements is an integral part of the evolution of cloud FinOps. The cost management spans three significant phases: Define the cost benefit This takes place at the outset, in the cloud assessment phase. Business case plays a critical role in value identification and drives value-based architectures. The focus in this stage must be on carrying out a pre-planned cost analysis, considering key cost aspects such as different application and infrastructure architecture patterns, strategies for reporting, and waste management, mapping to the key operational targets. Scope for alteration to factor in unexpected change requirements from business or IT. Realize the value This kicks in during the cloud transition phase. Cloud value realization pervades all implementation phases right from strategic planning to operations. It covers the entire spectrum from identifying, designing, quantifying, prioritizing, communicating, measuring, and delivering value. It is key to establish the buy-in, build momentum, and chart the operational value realization plan. A value realization office, established as part of an enterprise's cloud transformation strategy, ensures fruition of potential benefits identified in the business case. Businesses need to ensure that the

value realization office has the onus, freedom, and capability to define, design, and manage value. It should be able to foresee the business impact, forecast the ROI, and identify and mitigate risks. A value realization office must maintain artifacts such as a living business case; a detailed benefit realization plan including the success criteria ownership; stakeholder accountability to measure, monitor, and report value; baseline; scorecard; and target KPIs. Its responsibilities should include: Manage and optimize value This comes into play during what we call the cloud steady state. Inform, optimize, and operate are key phases in the FinOps life cycle. The strategies and tactics of cost optimization vary widely based on the organization and maturity of cloud adoption. Cloud cost management has a series of iterative steps for various considerations by selecting the right trade-offs between architecture and performance metrics. An illustration of a FinOps target operating model in the cloud with key domains and levers of cost control in the steady state. It considers four key domains of finance/ procurement, CCoE (cost center of excellence), DevOps and engineering, and leadership. Additionally, there are other levers such as budgets, cost allocation and governance, elasticity, and workload sizing that come into play. A FinOps target operating model addresses the challenging aspects of cloud cost management in the steady state. Most common concerns of cost management are proactive actions to manage cost, managing cost shared across departments, accurate forecasting, and reducing waste. A well-defined cloud governance framework with clear resource ownership, provisioning of controls, billing and metering, waste management, appropriate tagging and labeling, automated reports, threshold-based alerts, and automation strategies play a critical role in cloud cost management. An illustration showing a typical FinOps implementation framework covering local and global policies, idle resources management, underutilization check, monitoring tools, data analysis and reporting, FinOps KPI monitoring and reporting, automation, and chargeback. In FinOps in steady state, charge or showback plays a critical role. Cloud service providers produce a consolidated account-level consumption and billing reports for all the resources used. Businesses must analyze these reports for consumption and budget variance to "chargeback" or bill to the respective departments or services. Business accounts must put in place a chargeback model to assess the alignment and agreement among key stakeholders such as Line of Business, Finance, other functional units, and cloud service providers (CSPs). This will require looking at the account, tagging strategy, and alignment of application data (for instance, the App ID) to the different budget groups while developing the migration plans. It's a key step to defining an equitable chargeback model. Depending on cost optimization objectives, define optimal account structures to establish the right level of hierarchical account order and logical account groupings. Start tagging the resources at the earliest and maintain the consistency of tagging strategy. In specific scenarios such as data transfer costs, CSPs' support fees, or other costs that are shared by all users, it is very difficult to identify and allocate the costs back to individual teams, projects, or initiatives. In the discovery and assessment phase, analyze the current chargeback model and define the cloud cost and usage reports that can help generate the cost and usage information at the desired level of granularity. This will help in internal alignment on how to allocate the shared cost. So how can businesses get started on a chargeback model? First, build a dedicated team to develop the

chargeback model. Then, to ensure a smooth chargeback process, work closely with the Finance department, get their buy-in to implement chargeback, and gain strong support from the senior management. On an average, enterprises waste 30% of their cloud spend. - Gartner Cloud cost optimization can be achieved by planning target state architecture, cloud resource utilization, smart selection of cloud features, optimizing cloud performance along with governance processes, appropriate tools, and automation. Here are some best practices you can follow: Visibility Accountability Control Intelligence When it comes to cloud, it's easy to lose track of the resources deployed—and costs. That's why visibility, accountability, and control are so important. The cost control framework of DevFinOps in the steady state should consider key factors such as assumptions and affinity of migrating workloads, and work in tandem with datacenter objectives such as eliminating or optimizing costs. Adopting effective chargeback models and making simplify, modernize, and automate the mantra can go a long way in helping achieve savings from cloud transformation and realizing benefits from innovation and productivity to revenue uplift. Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience TCS Governance, Risk, and Compliance Services Looking to turn purpose into action? Theme Font size Line height =======================

AI-enabled personalization in the cloud era

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to a holistic, long-term personalization framework. To build loyalty, businesses must use personalization to virtually deliver streamlined experiences. This implies to customers that you recognize them and that they can trust your business to fulfill their unique and changing wants and needs. So, what can brands do to ensure that they are personalizing interactions in a way that customers want? AI can enhance customer journey and experience through three distinct areas. 1.   AI-infused data improves scale Today, with AI, we have access to large amounts of data, be it device data, network data, in-home automation data, or vehicle data. Automation aids in distributing and storing this large amount of data more efficiently. Models that used to be impossible to run (or could only run against limited data sets) are now executed with ease against thousands of variables. The variety, velocity, and volume of data definitely results in personalization at scale. 2.   AI-based analytics improves context Personalization works when it is relevant and based on specific data and analytics. On the machine-learning side, models such as neural networks or decision trees are a better fit than classical generalized linear models. They provide more accurate results and improved context. Cognitive computing, natural language processing, sentiment analysis extraction aid in creating pertinent structured data from unstructured sources. It allows them to append customer profiles with data which was not previously used for context and provide insights into customer sentiment, so brands can react accordingly. 3.   AI-based insight improves customer activation Customer activation is the ability to increase customer engagement. The more knowledge you have about a customer on an individual level, the more you can influence activation or engagement. Machine-learning-based techniques, like natural language processing and sentiment analysis extracts key customer data (i.e., phrases from a voice chat, an instruction to an AI-powered assistant, or a discussion on a social platform) to derive insight. Personalization is transformational and AI forges powerful customer relationships and enables businesses to become more resilient and adapt quickly to shifting consumer needs. Businesses that leverage the treasure trove of data available to them to digitally tailor their offerings, have an edge on the competition. Multiple consumer research studies point out the facts that: A personalization playbook can help an organization take a broad, holistic view at the ecosystem of data and technology required to deliver the promise of personalization at scale. A personalization playbook should include following key elements. 1. Top strategic business objectives and digital priorities 2. Essential core capabilities to deliver personalization at scale. Take a look at your existing tech stack. 3. Industry best practices for 4 key categories for Personalization viz. data, content, decisioning, channel delivery 4. Relevant AI-enabled use cases for repetitive tasks in areas of: The playbook approach addresses essential "building blocks" to power personalized journeys across the full customer lifecycle and helps our clients achieve the goal of personalization at scale. Following this approach, organizations can: The world we're living in now is profoundly different than it was just a few years ago – and will likely continue changing at a breakneck pace. But, amid constant change, businesses can find success so long as they address customers' individual problems through personalized solutions. Consumers are more likely to shop with brands they recognize and remember with exciting offers and recommendations. Celent highlights the merits of TCS Digital Home Lending Solution The Role of AI in

Revolutionizing Supply Chain Management Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Looking to turn purpose into action? Theme Font size Line height =====================

Cyber security diligence and planning vital to M&A success

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revealed. During Day 1 and post-merger integration, cyber vulnerability heightens, as employees increase their activity over the network and infrastructure to ensure the operational success of the deal. Bad actors use technologically sophisticated approaches and deepfake identity theft to access confidential personal and financial information, proprietary IP, new product schematics – all of which can be sold on the virtually untraceable dark web. Fraudsters may encrypt servers through malware and lock them in for ransom or may co-opt the use of the buyer or seller's network storage, bandwidth, and computing resources to carry out illegal activities. While during integration the overall security perimeter of the combining entities shifts, creating potential gaps for unauthorized entry, the greatest compromises come from undocumented "backdoors" such as an unpatched system, a networked legacy device, or even a forgotten or unmonitored web portal. Supply chain management is another area prone to cyberattacks as it involves tens of thousands of system interfaces internally and externally. Each system interface potentially offers intruders an opportunity to disrupt or illegally gain from the misuse of the buyer's and/or the seller's data, intellectual property, payments, and more. Buy-side diligence includes quick identification of issues that hamper a successful M&A deal. Before the deal is agreed, the buyer formulates a basic mitigation strategy and estimates investment required to alleviate cyber security issues, if and when they arise. Deal success, therefore, requires understanding of: Benchmark the practices of the seller against their competitors to determine the target acquisition's degree of above- or below average risk from both technical and non-technical factors. People: Assess not only the management of the IT and cyber systems but also the importance, and availability of support for IT security by the organization's leadership, employees, and third parties. Process: Review policies and procedures in place for data integrity maintenance and information stewardship. This includes governance of regulatory and compliance standards to fulfill all auditing and reporting obligations. Sell-side diligence requires identifying issues that could prevent a deal or negatively impact the sale price before a deal is negotiated. Successful sellers either resolve issues beforehand or optimally build their cyber security remediation into a detailed transition plan and pricing. Strategic priorities for the buyer's and the seller's c-suite are fivefold. Anticipating and pre-empting threats is half the battle won in a cyber risk mitigation strategy. A good cyber security plan for any acquisition, merger, or divestiture is both strategic and highly tactical to address the unique and dynamic nature of the transaction.   The M&A landscape is even more complex as cyber threats evolve due to the increasing sophistication of criminal tactics and tools available to enable them. The resultant damages are financial, operational, and reputational. M&A transactions almost always include the purchase or sale of data, and the plan to realize the targeted synergies and investment returns is only as sound as the cyber security in place before, during, and after the deal. Including digital security as a deal-driven priority is the only way to ensure a smooth, stable, and value-added M&A business exchange.   Anticipating and pre-empting threats is half the battle won in a cyber risk mitigation strategy. According to Gartner, by 2022, 60% of enterprises engaging in M&A will consider cyber security posture as a critical factor in their due diligence process. A diagram that shows six hexagons centered around one black hexagons labeled "Targets of Cyber Attacks." Out of the six hexagons, three are red while the other three

are blue. The image depicts the six most critical areas in an organization that are prone to cyber attacks. The three areas in the red hexagons are infection for blackmail, usable market data, and R&D data. The three areas in blue hexagons are new product schematics, intellectual property, and client data/PII. Celent highlights the merits of TCS Digital Home Lending Solution The Role of AI in Revolutionizing Supply Chain Management Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Looking to turn purpose into action? Theme Font size Line height
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Divestment Factories Ensure Smooth Transitions

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a copy of the report to your email again. The second half of 2020 witnessed a rebound in M&A activity with the highest third quarter on record, according to Dealogic. Many deals that were put on hold due to the economic uncertainties and logistical issues posed by COVID-19 are coming to fruition. With previously planned divestitures or future carve outs now back on the table, sellers, as well as buyers, must address the proverbial 'elephant in the room' – transition service agreements (TSAs). A TSA can not only create distractions to a seller's remaining business but provide sub-optimal operational support to the buyer during integration of the acquired assets. This whitepaper describes what drives the need for TSAs, provides guidance on how to right-size the scope with M&A playbooks, and shares insights on how to avoid TSAs all together with pre-defined solutions and migration services or Divestment Factories. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height
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When there's Naught in the Juggernaut: Autonomous Trucking Beckons

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Mastering M&A: Win the Game with the Right Playbook

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Digital Age Transformation: Building a High Performing Innovation Engine

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M&A, ERP Strategy and Solutions, TCS Courtney Wood Director, Thought Leadership & Practice Development, M&A Services, TCS You have these already downloaded We have sent you a copy of the report to your email again. During post-merger integration, one of the key technical areas that often gets overlooked is consolidation of the two companies' business-critical applications, in particular ERP (enterprise resource planning), to support the combined entity. Mergers and acquisitions aim to create a source of competitive advantage. The right strategy for combining operating environments, including the integration of ERP, sets the direction for weaving the two organizations together in a way that accelerates the desired synergies and provides the market edge they seek. The key factors to determining the right ERP integration approach are the following: Fortune favors the prepared; early attention to ERP integration accelerates and enhances synergy realization. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height

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current roles. Beyond that, universities face the challenges of expanded remote online teaching and learning in response to the pandemic, as well as the general ongoing shift to cloud environments for data processing and storage. Ransomware complaints received by FBI's Internet Crime Complaint Centre in 2021 USD million adjusted losses incurred in 2021 Healthcare and first responder networks targeted in the United States Organizations targeted by Conti Ransomware group Collaboration, the natural hallmark of education, is based on trusted and secure information exchange. As data is passed back and forth between groups of users—faculty to students, students to the university, researchers to colleagues both inside and outside the university—all involved must be assured that the information is kept confidential, accurate and consistent, and available when needed. Fruitful collaboration is possible only if people can quickly, seamlessly verify the identities of others, and provide or restrict access to the correct systems and data. Here are some recommendations for effective IAM program for effective cybersecurity in a university setting: The foundation of a strong IAM program is that it be rooted in an integrated framework for managing digital credentials—one that combines identification, access, authorization, and auditing. No single element will suffice. Like good household plumbing, an IAM program should operate quietly in the background to allow users to live their digital lives without hindrance. It should function seamlessly with applications, databases, and other institutional assets to make the digital user experience efficient and secure. A robust IAM program should also allow end users some degree of control over their own identity. For example, permitting users to change their formal name in the system to a preferred name.   Finally, correct timing of appropriate access is key to security. A new user should be granted initial system access in a prompt and accurate fashion and, even more importantly, access should be removed quickly when users leave the system or their roles change. With the cybersecurity industry's increasing focus on defending individual digital assets instead of trying to protect the network perimeter, IAM is getting more attention. A user's unique identity can serve as the cornerstone of information security if a robust IAM program is in place. But it doesn't happen easily or quickly. Some unique functions within IAM have become so specialized that they are now beyond the capability of many institutions. This has led them to turn to professional services firms for a comprehensive solution, according to Gartner. Good IAM partners are maturing to security allies who are regularly consulted about direction, strategy, and changes in technology. This added perspective is much needed because IAM programs and solutions must continually evolve to meet shifting security demands of online behavior, regulatory requirements, and new identity standards and best practices. Technology-led Great Employee Experiences for Future-ready Enterprises Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse 5 Ways to attract talent by improving the candidate experience Looking to turn purpose into action? Theme Font size Line height
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Why cloud is key to telco network transformation

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delivered on video, audio, and gaming platforms—not to mention billions of IoT-enabled connected devices—are placing more demands than ever on networking capabilities. Low agility: Many telcos work within a closed network environment built on monolithic architectures and delivered over proprietary hardware and software.   To tackle these challenges, telecom network service providers can look to the cloud. We've identified five foundational pillars that can be used to accelerate network innovation and better monetize network investments. 1. A software-oriented approach Next-generation industry standards like 5G and XGS-PON require significant investments in network infrastructure. However, the next wave of innovation will come through cloud-native software.   Software, being inherently easier to deploy and manage than hardware, can enable a more granular control of network functions, security, and SLAs. This can lead to commoditized hardware that supports multiple network functions. 2. An open ecosystem In traditional access networks, the key components tend to be vertically integrated and come from a single vendor. This has led to a closed estate, where telcos have low visibility of their network operations and are locked into vendors. Industry initiatives to allow for more open network architecture, such as Open-RAN, may help overcome these challenges. Interoperable network components also enable "best of breed" architectures, where each individual component can be sourced separately and still interact with other components. 3. The power of edge As carriers move toward an open ecosystem and decentralized architecture, edge computing is poised to be another key differentiator. Telcos can use far-edge infrastructures, which place devices closer to users and can provide ultra-low latency, location-centric processing. Alternately, near-edge infrastructures can be used to deploy content delivery network (CDN) services, which can serve many locations. 4. Cloud native   Cloud-native architectures enable fast auto-scaling and portable apps. Containerized network functions (CNFs) managed using container management platforms (built on Kubernetes, such as Google Anthos, Azure Arc or AWS EKS-A) can be used to seamlessly manage private and public cloud resources within a cluster. Using CNFs, it is much easier to make small, quick updates to network software, while enabling advanced monitoring. Also, through cloud-native management controls, CNFs can help provide better security oversight, granular traffic routing, and automated network operations. An image showing the three keys of a cloud-native framework for telcos. Companies looking to build a cloud-native architecture need to focus on three things: transforming network functions so they can be run on containers; adopting open-source technologies to gain portability across vendors; and delivering a consistent, hybrid cloud platform experience. 5. Smart use of automation Automation can help telcos manage growing network complexities and costs. Its benefits can spread across the entire network implementation cycle. Service management and orchestration-type frameworks allow automation across a diverse set of CNFs and virtual network functions (VNFs), which can span multi-vendor deployments. Automated CI-CD pipelines can be used to deploy VNFs and CNFs on private or public cloud or at edge locations, and they can help build and tear down virtual networks "on-the-fly." This enables fast network service deployments, thereby reducing time to market and managing costs.   By 2025, at least 30% of Tier 1 communications service providers will be using hyperscale cloud providers for both their public and private cloud requirements

Operators looking to move from traditional telco networks to telco cloud should remember the following considerations. 1. Bake in security An open ecosystem comes with inherent risk – one that, if not managed properly, can jeopardize large-scale network modernization plans. The distributed nature of an open architecture implies higher exposure. To mitigate the challenges, telcos need to implement multiple layers of encryption and authentication. Additionally, implement granular access control that mandates policies based on "Principle of least privilege", "Defense in depth" and "Zero-trust". Telcos should make use of modern SIEM (Security Information & Event Management) solutions to identify incidents, events, and threats. When augmented with advanced statistical analytics on network behavior, SIEM solutions can help deliver advanced detection of malicious activities. 2. Create a scalable migration and rollout strategy 'Brownfield' telco operators have invested huge sums in implementing their networks. These infrastructures can provide stepping-stones towards a scalable, open-cloud native architecture. For example, as more operators ramp up their 5G footprint, the 4G setup can be used as a supplement in the radio access space. However, operators must be mindful of the fallacy of sunken costs and watch for opportunities to truly modernize their networks – even if they don't decide to do a complete overhaul. Typically, an assessment of the current state of virtualization and applications helps create a holistic migration plan. Additionally, contextual knowledge of use-cases, user density and user location can help define effective rollout strategies. Start with the leaf nodes of the network before transitioning to the access and core networks. 3. Find ways to optimize your organization When embracing cloud, telcos have an opportunity to share skills across IT and networks and to break down organizational silos. The network planning, build, and management departments must be geared to thrive in such a software-oriented world. This means being more agile to changes and adopting a cloud-native mindset in terms of cost management, reliability, operational excellence, and performance. 4. Choose the right hyperscaler offerings Hyperscalers are stepping up to provide customized, telco-oriented platforms and solutions. These can span edge computing and IoT and even include customized solutions targeted towards private clouds. Hybrid and multi-cloud strategies can help telcos avoid being locked to one vendor. Also, several service offerings target the different legs of network deployment. These can be used and customized to create solutions for different use cases. Some telco-oriented service offerings may still be evolving and hence be at different levels of maturity – so organizations will need to do a contextual assessment to find the best fit.   The illustration shows a variety of customized, telco-oriented platforms and solutions from hyperscalers such as Amazon Web Services, Google Cloud, and Microsoft Azure. These include offerings for core networks, far edge, and multi-acess edge computing. With several hyperscaler services and solutions targeted at different legs of network deployment, and allowing customization for different use cases, these telco cloud offerings are accelerating network transformations and driving business value.   Next-generation networks built on the cloud can not only improve scale and resilience, but also can open entirely new revenue streams. So how can telcos monetize their investments in telco cloud transformation to unlock new business opportunities? There is an ever-growing list of use-cases and partnerships. The illustration shows how telecom companies can drive new business value across industries after

adopting the pillars of telco cloud. Either as a service provider, an aggregator, or a network provider, telcos have a prime role in bringing to life smart cities, connected cars, smart healthcare ecosystems, and accelerating the move to a circular economy and net zero. They are also vital in enabling immersive experiences; transforming factory floors and assembly lines through IoT services delivered on cloud; and revolutionalizing mining and agriculture using AI-ML services on the edge or cloud. A few highlights: Targeting the consumer segment, telcos can explore new markets through immersive experiences that transform user engagement. Whether it's a virtual cup of coffee with a colleague, a live music event, or portable gaming, telcos can manage high user densities at a low latency through technologies like Multi-Access Edge computing (MEC). Telcos can help enterprises usher in an "Industry 4.0" by transforming factory floors and assembly lines. Operators can remotely manage vast device fleets enabled through IoT services over dedicated network slices. Data gathered through these fleets can also help build prescriptive machine learning models that can ensure effective resource utilization. Telcos can contribute towards communities through initiatives such as "Smart Cities, Connected Cars" by enabling a hyper-connected virtual reality. In all these scenarios, telcos have a prime role to play – either as a service provider, an aggregator, or a network provider. 5G, IoT and edge computing hold great promise for telcos. However, to convert this promise into business opportunities, telcos will need to transform traditional networks based on the pillars of telco cloud. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height =====================

How a better digital workplace can boost the bottom line

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worrying about security breaches, and to assess whether they can communicate and collaborate easily with other colleagues and the larger ecosystem. You may have to streamline and automate business processes, improve transparency in internal company workflows, and focus on digital reskilling of your workforce and other stakeholders. A perpetual transformation roadmap can help you achieve these goals. More in companies with highly engaged employees In companies which excel at customer experience Increased sales to company from engaged employees Increased profitability to company through engaged employees A three-wave, perpetual transformation approach can help balance change adoption and speed to value of the digital workplace. Wave 1: Move to a digital core A digital core is an integrated, collaborative workspace enabled by multi-cloud for stakeholders across the ecosystem. In this step, the aim is to drive seamless collaboration for better stakeholder experience and engagement. Look for ways to break the status quo, address the current pain points in processes, and provide collaborative tools to facilitate hybrid work and improve productivity. Wave 2: Move to modern workplace A modern workplace uses technology to improve efficiency through intelligent automation. In this step, the aim is to enhance other processes. You will want to lean on technologies such as cloud, AI-ML, RPA, chatbots, and other self-help tools. This can reduce user stress and promote engagement. For example, you can use chatbots to make intelligent recommendations and informed decisions during a meeting, or you can make training more engaging through gamified, interactive user interfaces. Wave 3: Transform the business Finally, you can begin to use technology to gain a competitive edge. Begin with future-back thinking, where you focus on the outcome you want to achieve within a set time period, and then do backward-planning to identify milestones toward your goal. This planning might encompass technologies such as the metaverse, IoT devices, and drones—any of which could transform the way users engage with each other across the ecosystem. This step helps to transform the stakeholder experience, which, in turn, can drive growth and revenue. For example, a retail organization selling products through simulation could create a whole new experience for their customers. Underlying the three waves stated above is the premise of delivering a great user experience backed by people, process, and technology transformation. It's important to remember that experience is directly associated with engagement. Digital workplaces that provide a positive user experience improve overall user engagement. A hybrid work culture, with a focus on transparent communication along with intelligent and automated platforms, tends to promote better user experience. Foundational elements may include adopting cloud-native technologies, revisiting the business and technology architecture, and reskilling people. Users interact with various internal and external applications to manage and organize their work and activities. In fact, on average, organizations with 1,000 or more employees now use 110 SaaS applications—up from 16 applications in 2017. Too many applications can end up confusing employees and wasting their time since they may have to toggle between multiple applications to accomplish one task. Digital workplaces offer a central platform to access all the applications across the ecosystem. Moreover, a digital workplace platform creates a transparent working environment where all team members can track the status of any given project or task directly, which leads to fewer e-mails. When the entire team

is on the same page, everyone can focus more on the shared project goals and accomplish their tasks in an agile and efficient manner. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height ======================

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causing unnecessary downtime and increased costs. With the new cutting-edge technology available today, it is possible to shift from a routine, scheduled maintenance program to an insights-driven predictive maintenance solution. Manufacturers can develop and leverage an IoT-enabled prescriptive maintenance solution utilizing the following methodologies and tools: Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Theme Font size Line height =====================

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several enterprises have accelerated their digital transformation programs to expand digital capabilities. While a hybrid cloud solution combines a private cloud with one or more public cloud services, distributed cloud and edge computing enable real-time insights to further improve customer experience. Distributed cloud enables cloud services across geographically distributed locations, with the overall operations being centrally managed by the public cloud provider. Edge computing brings computation and data storage closer to the location to improve response times and save bandwidth. Together, distributed cloud and edge computing help improve data compression and transfer in the connectivity layer of the technology stack, reducing network bandwidth and making IoT applications possible. The solution enables the following: Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Theme Font size Line height =====================

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Sailing Through the Patent Prosecution Stage - Strategies

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Time to embrace the semantic data revolution

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hand in hand with world-leading investors. Peter Kibby Nagarjuna Challa Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Peter Kibby Senior Principal Consultant Nagarjuna Challa Managing Consultant You have these already downloaded We have sent you a copy of the report to your email again. All enterprises need insight into their ecosystems. Without insights, it's impossible to make data-driven decisions or to survive in a data-driven world. Companies need to integrate diverse data to understand changes unfolding in their business and the world around them and to adapt to those changes. But often, they run into challenges such as: Continuously increasing sophistication in analytics requirements Data silos and multiple data sources, which lead to duplication and inconsistency, reduce the value of analytics, and add risk and time to decision making Long data supply chains and complex data lineage, which obscure the causes of issues and slow down innovation Managing data as a graph addresses these issues at their roots. In a relational database, you might be able to use 10 entities in 9 combinations. In a graph the potential maximum is 10-factorial combinations. Even if only half are realized, that's 120 combinations ready for analysis. On top of that, entities (nodes) and relationships are added or changed in the database by simply adding or changing data.   Volume, velocity, and variety in data are not the only challenges; the new goal is to overcome uncertainty and deal with what we do not yet know. Pharmaceutical, financial, and technical industries provide examples of semantic data helping organizations make data-driven decisions. Pharmaceutical companies have a patchwork of large volumes of documents, experimental datasets, various data models, and relational databases. A main effort in most pharma use cases is to join them up so that omissions or inconsistencies and new correlations can be found—that is, to reveal what they ought to know already. But even if the data could be converted to relational data, the solution would still be insufficiently flexible. New, semantic methods can tease out the clues to the causes and cures of disease, ill-health, and even aging. In the financial sector, access to an organization's total knowledge is vital to identify and prevent money laundering, fraud, and terror financing. In engineering, transport and utilities, digital twins must model the complexity of dependencies in

interconnected systems to identify, simulate, and anticipate product outcomes and their environmental impacts. Semantic data provides more flexibility to queries, with three distinct advantages. Apart from its computational efficiency, where we started, semantic data has a fundamental difference from tabular data. With tabular data, any assertion that is not in the database is assumed to be false. In a graph, however, that same assertion is undecidable: we just don't know. The open and potentially unending network of the graph is ideal not just for capturing incomplete data, but also for adding to and extending our observations. In business terms, this means greater agility and faster digital innovation. A third advantage of semantic data is inference. "Triples" (a data set that has a subject, predicate, and object expression) state (partial) truths. Logic can then be applied systematically to identify additional meaning or find anomalous evidence (inferences). In practice, this means finding suspects in fraud, drug discovery, and system failure from data whose volume, variety and velocity far exceeds the capacity of human investigators. For example, pharma companies are automatically annotating huge volumes of data with terms and relationships drawn from ontologies (concepts and categories). This metadata then can be drawn into a knowledge graph that starts from the same ontologies. The knowledge graph is then interrogated using data science, pattern recognition, and machine learning, to find the vital missing research – a potential discovery that cannot be seen from a human standpoint. By 2025, graph technologies will be used in 80% of data and analytics innovations, up from 10% in 2021, facilitating rapid decision making across the enterprise. Gartner, Market Guide for Graph Database Management Solutions Any organization that's not identifying use cases or exploring semantic data is behind the curve, at a point of major inflection in the evolution of data management. Here are use cases spanning various industries. Identifying and preventing fraud based on detecting communities of like behavior, unusual transactions, or suspicious commonalities. Improving customer experience and patient outcomes by surfacing complex sequences of activities. Anticipating customer demand for energy by conducting multi-factor analysis of weather and behavioral influencers (sporting events, holidays, TV scheduling, cultural events, or changes in working patterns). Retaining customers by combining individual data with community behavior and the activities of influential individuals. Forecasting supply-chain needs using a holistic view of dependencies and identified bottlenecks. Recommending products based on customer history, seasonality, warehouse stock, and sales of other items. Conducting what-if scenario planning and "next best action" recommendations using alternative pathways and similarities. Many vendors position knowledge graphs as a means of integrating diverse data from multiple sources but creating a semantic data fabric is so much more than implementing technology. The graph itself does not address the challenge of aligning diverse definitions of the data. The process of making data available or visible on a semantic platform does, however, have the advantage of automated reasoning. When a target data model or the lineage, residency, and survivorship of the data are captured as an ontology and graphs, automated reasoning can assist in identifying inconsistencies, no matter how large or complicated the model or data flows. Starting with the most relevant and valuable data establishes a baseline, which may be built out progressively. This benefits from the governance and controls provided uniquely by an ontology-enabled modeling

process. Not all semantic data is voluminous or fast-moving. For example, a relatively small number of triples can provide the semantics in a large semantic data set. These may be organized as a tightly focused set of triples or as an ontology. It is the meaning and logic that ontologies inject into data that makes them a vital part of semantic data management.   Semantic data will cannibalize some existing IT investments. Sometimes this has to be borne, to grasp the opportunity of establishing new capability or even to maintain existing business. At this point, senior execs should be asking their teams for use cases to bring together a well-funded business case for developing organizational capability in semantic data, not just point solutions. They should stimulate and reward those who are willing to step out of the comfort zone and into the world of triples, SPARQL, and graph. Boston Scientific has an integrated supply chain, from raw materials to complex devices, that includes development, design, manufacturing, and sales. Predicting and preventing device failures early is crucial. However, the company had difficulty pinpointing the root cause of defects, limiting its ability to prevent future problems. Boston Scientific used a decisioning graph to analyze its supply chain, covering parts, finished products, and failures, organized by an ontology, which defined a hierarchy of parts and relationships to events that result in failures. Graph queries quickly revealed subcomponents' complex relationships and traced their failures. The company identified previously unknown vulnerabilities, using graph-based algorithms to rank parts' proximity to failures and to similar components. A graph that plots a 10-year progression of 12 leading database architectures. The graph plots data between 2013 through 2022 for relational DBMS, spatial DBMS, wide column stores, multivalue DBMS, object-oriented DBMS, native XML DBMS, search engines, RDF stores, key value stores, document stores, time series DBMS, and graph DBMS. The comparative graphs show how adoption of graph DBMS has far exceeded its peers and the gap is exponentially widening over time as the use of semantic data increases. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height =====================

The Future of Packing - Digitalized, Integrated, and Automated

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Eight steps to robust cyber resilience

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change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Large companies Small businesses Cost to comapany Asif Kaba James LeMaster Tim Flannery Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Asif Kaba Engagement Director, TCS James LeMaster Engagement Director, TCS Tim Flannery Engagement Manager, TCS You have these already downloaded We have sent you a copy of the report to your email again. The attack surface is constantly expanding due to remote work trends, sophisticated cyber-criminal groups, and human vulnerability. It is no wonder that cyber incidents have ranked first among global companies' concerns in the Allianz Risk Barometer's 2022 annual report. The ability to continue operations following a cyber intrusion is critical to customer trust, business revenue, brand reputation, and regulatory compliance. But only a few companies have developed cyber resiliency (CR). Many are still vulnerable to the potentially grave consequences of cyberattacks (See Figure 1).   An image showing the potential consequences of cyberattacks. Without effective cyber resilience, a cyberattack can be catastrophic or destructive for enterprises, based on the scope of the attack and how long it takes a business to recover. On the other hand, with effective cyber resilience and faster recovery, the incident can be controlled quickly and its impact limited.   When aiming for cyber resiliency, begin by creating a focused unit. The leader of the focused unit, also known as the CR champion, should have both IT and business experience and the full support of the senior leadership. Organizational silos, where detailed knowledge needed to improve resiliency of a specific business function resides only within that function, can prove to be roadblocks (see Figure 2). Ideally, their insight and active support should be incorporated into a cyber resiliency program that the CR champion orchestrates. Building cyber resilience is not the job of just one function within an organization. It requires many allied functions to come together, some of which are business continuity and disaster recovery, enterprise risk management, cybersecurity, IT, organizational resilience, and data integrity, availability and confidentiality.   Spread awareness of all digital resources. The enterprise should prepare an inventory of its IT and business networks and, if

applicable, operational technology and industrial control systems (OT/ICS) and data repositories. For many organizations, the trend toward cloud migration means digital assets stored off-premises or in a hybrid environment should be included in the inventory. With the help of business and IT process owners, the CR team should map the digital roles and activities that keep the organization functioning. Similarly, enterprises should survey cyber links to suppliers and vendors, estimate associated risks, and formally acknowledge hazards. Once these are defined, enterprises can then prioritize protecting key assets and monitoring high-value resources and significant system weaknesses. They should adopt a zero-trust security framework to protect networks, implement stringent identity and access management controls, and secure virtual private networks (VPNs) and encryption. Networks should be segmented to keep malicious intruders from moving laterally, and enterprises should establish clear demarcations between IT and OT connectivity and control systems. All data and systems should also be backed up offline. In anticipation of an attack, cyber resilient enterprises should establish partnerships to forestall becoming a victim and, if needed, facilitate response-and-recovery. Sharing cyber threat intelligence and cooperating on security issues with both private sector peers and public sector agencies will not prevent every attack but will contribute to collective defense and enhance mutual resilience. Implement a unified approach to manage cyber risk and integrate cyber and business strategy, focusing on business enablement. This approach includes updating governance documents, such as business impact analyses, technology management strategies, and business continuity procedures. CR team members should lead IT teams and business lines in a collaborative review of realistic expectations and refinement on cyber incident response and true recovery point and time objectives, maximum tolerable downtime, maximum impact tolerance, and alternative action plans. (see Figure 3). Setting a clear timeline for recovery after a cyber incident is an integral part of cyber risk management. Cyber resilience champions should lead IT teams and business lines in a collaborative review of realistic expectations and refinement of cyber incident responses, true recovery points and timelines, the maximum tolerable downtime, the maximum impact tolerance, and alternative action plans.   While the CR team leads the cyber resilience effort, ensure the program goals are integrated throughout the organization. Business units and IT teams should be responsible for creating and/or updating their respective cyber resilience governance documents. As enterprises embark on their journey to cyber resiliency, they can go through this checklist to ensure they have a robust plan in place: Identify a CR champion. Heighten awareness of all digital resources. Document and understand dependencies on third parties, suppliers, and vendors. Prioritize all assets across digital, physical, and vendor-managed inventories. Increase network segmentation and develop a data vault. Double identity and access management (IAM) efforts, emphasizing role-based access management (RBAM) for critical systems. Partner with government agencies for increased awareness of threats and threat vectors. Partner with industry-recognized leaders to guide efficient implementation of CR processes.   of large companies in the US experienced a data breach in 2021 of small businesses in the US were also breached. Is the average cost of a data breach in 2022   Be armed with a target operating model for cyber crisis situations, including arrangements to restart systems temporarily disabled

by an attack. Enterprises must regularly test playbooks for continuity and crisis management in the event of a cyberattack. In case of a breach, there will be pre-designed communication scripts and an established approval process for releasing information to the public. Ideally, these internal plans would be shared confidentially with relevant government agencies. For enterprises in critical infrastructure industries such as communications, it is advisable to establish an offline data archive to back up and store the proverbial 'crown jewels'. A third-party service provider can support this resiliency measure. External, industry-led organizations, such as sector-based information sharing and analysis centers (ISACs), can provide general standards to promote data protection and recovery. Organizations utilizing digitally air-gapped data vaults should regularly test recovery procedures to be prepared in case of a catastrophic cyber event. Finally, given the widespread occurrence of attacks and their potential for considerable damage, cyber resilience warrants undivided support from the organization's most senior leaders. Board members and senior management should receive regular updates on the enterprise's cyber resilience posture to help them maintain awareness, enable resource prioritization, and facilitate risk mitigation. Their support is foundational to organization-wide recognition of the critical value of cyber resilience efforts.   Enhance cyber resilience with zero trust security Strengthening Cybersecurity with TCS' Managed Security Services Data and Cybersecurity to Fight off Cyberattacks Ransomware protection: Organizations' cyber defense against malware Looking to turn purpose into action? Theme Font size Line height =======================

The perils of over-personalization

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catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Personalization is a hugely powerful tool. But it's not risk-free. Knowing when to personalize and when not to is critical in engaging customers. 6 MINS READ James Wheless Global Managing Partner, Customer Experience and Transformation, Consulting Navin Mithel Partner, Marketing Transformation Scott Hilchey Director, Customer Experience Transformation You have these already downloaded We have sent you a copy of the report to your email again. Personalization has been synonymous with highly effective, customer-focused digital marketing strategies for some time now—and for good reason. Data-driven personalization allows marketers to engage their customers on a far deeper level. It allows them to communicate, make offers, run promotions, and build relationships in a way that truly resonates with each individual. A TCS CMO Study found, for example, that leading marketers are now using a range of data sources to personalize communications across e-mail, brand websites, social media, online advertisements, and numerous other digital channels. This personalization extends across all stages of the marketing funnel, from the demographic data used to customize messages at the awareness stage, to the increasing use of first-party data to tailor communications as the customer moves through conversion and the focus switches to support and retention. Leading brands are using these techniques because they know personalization works. The same TCS study found, for instance, that 86% of the companies that get the most impact from their marketing investments are more likely to personalize awareness communications with useful product or service information.   Personalization is not risk-free. In fact, taken too far, it can be counterproductive to long-term customer engagement. Too much personalized communication can end up feeling intrusive and unwelcome. And there's the risk of turning off precisely those customers the brand is trying to retain. One reason this happens is that marketers can mistake purchase behavior for brand engagement. The two are not the same. And the simple fact is, having bought a product or paid for a service, customers don't always want a personalized relationship with the company or brand that provided it. This is especially true with low-involvement consumer packaged goods. Shoppers of these products are often making purchases purely through habit. Or without paying much attention to the brand they're buying. Few people, if any, are looking for an enduring or meaningful relationship with their washing detergent manufacturer. Indeed, for some consumers, this more transactional view of the brand relationship applies to all their buying, whether large or small, luxury or commodity. And attempting to constantly engage these customers via personalized communications is not only ineffective, but also runs the risk of actively turning them off the brand.   This mindset also affects how

much data customers feel comfortable sharing. If a person doesn't have any particular attachment or loyalty to a brand, they're less likely to see why it should have access to their data. One area this is particularly evident is when brands overreach in asking for feedback. Just about every customer will know the feeling of being bombarded with endless requests from a company to tell them how they're doing or to rate their most recent interaction. From the customer's perspective, this often makes little sense. Most people don't have an opinion on these everyday interactions. And being constantly badgered with requests to provide feedback can come across as paranoid and intrusive. Indeed, left unchecked, marketers risk creating a "negative customer universe". This is where a growing segment of customers decide they've simply had enough of the brand. The numbing effect of communication overreach means they switch off and become unresponsive to any future engagement. The way a customer perceives their relationship with the brand is often very different to how the brand perceives its relationship with the customer. So where does this leave marketing communication strategies? Of course, no one would suggest reverting to the antiquated one-size-fits-all mass-market approaches of the past. Personalization remains an extremely powerful tool that delivers real value to both brands and consumers. But it needs to be done right. Savvy brands know when to personalize, when to engage, when to seek feedback, and—crucially—when not to. The line between personalized engagement and unwanted intrusion is a thin one. A sophisticated marketing and customer engagement strategy needs to be absolutely rigorous about staying on the right side of it. Here are three important considerations for marketers as they look to do that. 1. Think quality, not quantity Digital communications are now so inexpensive that any business, of any size, has the capacity to send out tens or hundreds of thousands of e-mails to solicit feedback from customers. But just because you can doesn't mean you should. The overarching principle to keep in mind is quality not quantity. It's vital that marketers find a cadence and a level of personalization that builds loyalty and drives conversions, yet doesn't turn potentially valuable customers away from the brand. 2. Not every customer wants to be your friend The way a customer perceives their relationship with the brand is often very different to how the brand perceives its relationship with the customer. Companies need to understand this when they measure customer engagement. That includes recognizing that every communication has an impact, even if it doesn't show up immediately in the marketing analytics. A non-response from a customer doesn't mean they didn't get the message, or they don't like the product. Silence can often mean contentment. It's essential to view customer engagement (or non-engagement) in a more nuanced way. 3. Don't make everything about rating their experience Brands understandably want to acquire the data that lets them understand their individual customers better. It's critical for developing long-lasting, trusted relationships, and driving customer lifetime value. But this data gathering needs to be done smartly. Constantly asking every customer to rate every interaction is counterproductive. Healthy human-to-human relationships don't involve asking for feedback on every single thing that happens, and nor should brand relationships. The overarching point here is that successful brands believe in the strength of the long-term relationship they have with their customers. Their marketing and personalization strategies should reflect that sense of confidence, ambition, and trust rather than risk undermining

the health of the customer relationship with a constant barrage of paranoid enquiry and over-the-top personalization. Operationalizing this strategy can be made easier by pairing personalization strategies with a customer data platform (CDP) or marketing automation capabilities. By taking an intelligent, nuanced approach, brands can read their customers far more accurately—as people, rather than data points. They can get the right balance in their communication. And they can ensure personalization delivers what it's meant to: respectful, meaningful engagement that augments rather than diminishes a customer's perception of the brand, and their long-term value to the company.   Innovative parcel consolidation: The answer to last-mile logistics woes TCS Aviana™ Helps United Airlines Get Off to a Flying Start AI-enabled personalization to drive customer engagement Ready to change the game? Theme Font size Line height =======================

Six principles to unlock value at a NewCo

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begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Joe DiPrima Chief Information Officer, Cordis Corporation Praveen Bhasin Managing Partner, TCS M&A Services Julie Wang Director, TCS M&A Services You have these already downloaded We have sent you a copy of the report to your email again. Standing up a NewCo through an initial public offering (IPO), sale to private equity (PE) firm, or a divesture presents a unique opportunity for company leadership to unlock stakeholder value. TCS recently partnered with Cordis, a leading medical device manufacturer based in the US, to assist with its process of separating from its parent company. Going in, we knew that aligning early on an end-state strategy, having full financial visibility, and preparing for operational control would be critical factors for long-term success. TCS and Cordis followed six principles to ensure value creation for shareholders and employees. Based on our shared experience throughout the process, here are the lessons we learned. 1. Establish a robust governance that comprises cross-functional senior leaders. By establishing a cross-functional governance model early on, a NewCo can have a focused approach, balancing transactional challenges and risks with appropriate contingency plans. The governance team should be ready to drive a comprehensive list of stand-up activities and key performance indicators (KPIs) from Day 1. The company must also empower the governance team—such as a transaction management office (TMO)—to make timely decisions as a collective body. This empowerment is critical to gain operational control, have financial visibility, and drive innovation while still working with the selling company. At Cordis, we established a robust, cross-functional leadership team, which drove stand-up activities and owned critical decisions. Positioning Cordis as an independent company with unique opportunities to build innovative business solutions was exciting for new and existing staff. The chance for our teammates to put their fingerprints on the new Cordis was a major selling point. 2. Drive profitable revenue growth by focusing on key products and customers while optimizing operations. To drive profitable growth, a NewCo must adopt a two-pronged approach: focus on core product lines and key customer markets, while optimizing operations and reducing costs in supply chain. For a product company, this includes reducing costs related to planning, manufacturing, distribution, and logistics. We learned early on that Cordis' supply chain operating model and distribution KPIs needed to be redesigned, as Cordis became a standalone entity with its own corporate vision and strategy. Our approach included streamlining the build and logistics processes at Cordis to reduce freight costs, optimize the supply chain network, and increase customer satisfaction. This also allowed Cordis to make faster decisions on its manufacturing posture, including its product mix, financial needs, and cost areas. 3. Establish a culture of innovation to drive R&D, expand market opportunities, and improve customer satisfaction and loyalty. Aside from the obvious financial benefit of additional revenue, the establishment of a NewCo as a disruptive innovator can attract top-level talent as well as prospective shareholder interest. The new company often can build a culture that is different from that of the seller's,
which empowers employees to innovate and more directly align their activities to the new operating model. "We found that positioning Cordis as an independent company with unique opportunities to build greenfield IT

and innovative business solutions was attractive and exciting to talented new hires and existing staff," says Joe DiPrima, CIO of Cordis. "The chance for our teammates to put their fingerprints on the new Cordis was a major selling point." The NewCo should have a clear long-term vision, with milestones broken down into waves or move groups. Aim to achieve 80% of stand-up activities in the first 12 to 18 months.   4. Gain operational control as quickly as possible by minimizing dependencies on Transitional Service Agreements (TSAs) and the seller. The need for operational control isn't important only in IT, but also in supply chain, manufacturing, and beyond. For example, at Cordis, gaining operational control in sales and marketing functions can help Cordis management make decisions on pricing, product mix, and customer service, with an aim of driving customer satisfaction and revenue growth. In addition, it is best practice to assess company policies and procedures for efficiency, cost, and corporate priorities. Successful demonstration of operational control early on—especially in the areas of manufacturing, supply chain optimization, and customer experience—can build confidence among all stakeholders, including customers, employees, and shareholders. Early in the spin-off or divestiture process, companies need to quickly assess the talent pool, identify upskilling requirements, and plan for the next-gen capabilities that will be needed to create an optimal organization structure and vendor ecosystem. As it nears full independence, Cordis is building a leaner, more agile organization. This includes key partners that will support Cordis in the longer term, such as shared services and strategic advisers for business and technology. These partners are also responsible for bringing innovation to the ecosystem, supporting Cordis through market fluctuations, and serving its customer base.   6. Find the right balance between centralization and autonomy to achieve timely execution. A structured approach to executing the NewCo stand-up activities requires striking the right balance between a highly centralized approach versus an autonomous approach. This balance is required across all functions to achieve the timely execution of program tasks. The NewCo should have a clear long-term vision, with milestones broken down into waves or move groups. Aim to achieve 80% of stand-up activities in the first 12 to 18 months. This will reduce dependency on TSAs and allow the company to focus on growth as an independent entity. In addition, have a clear and detailed project plan that provides the NewCo visibility into which and when business capabilities will be stood up, as jointly agreed upon by business and technology owners. For the Cordis standup, we learned early on that establishing a well-thought-out wave plan would be fundamental for the success of the transaction. By successfully leveraging these six principles, Cordis has minimized its reliance on the seller and placed focus on selected transformation programs to establish a strong foundation for growth. In addition, developing a right partner ecosystem helped Cordis manage peaks and valleys of demand, while providing continuous innovation for product development and its operational operating model.   Speed Synergy Realization with M&A Playbooks Mitigating cyber threats – A key to successful M&A deal Divestiture Strategy: The Making of a Smooth Transition to Deal Value Evaluating the Winning M&A Strategy for Company's Growth Looking to turn purpose into action? Theme Font size Line height ====================

How AI will guide future M&A deals

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/consulting/white-paper/ai-algorithms-mergers-and-acquisition-deals ----- Highlights On this page Getting M&A deals right How algorithms work Applying algorithms to M&A A promising future About the authors Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Figure Adam Boostrom Jonathan Iggulden James Olliver Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Adam Boostrom Business Consultant, Consulting & Services Integration, TCS Jonathan Iggulden Business Consultant, Consulting & Services Integration, TCS James Olliver Business Analyst, Consulting & Services Integration, TCS You have these already downloaded We have sent you a copy of the report to your email again. M&A transactions have always been an integral part of corporate strategy. And that's how it's been since the birth of the modern corporate merger in 1708, when the East India Company joined forces with an upstart English competitor to preserve its global trading monopoly. Used to eliminate competitors, grow capabilities, achieve economies of scale, and reduce costs, the right deal can mean the difference between market dominance and market irrelevance. However, not all M&A deals work out. Famously, when AOL merged with Time Warner in 2000, it led to the destruction of more than a hundred billion dollars of shareholder equity. Likewise, in 2005, when Sprint acquired Nextel for close

to $38 billion dollars, it created the world's third-largest telecommunications provider. Yet only three years later, Sprint Nextel stock would be reduced to junk status. M&A dealmakers face constant challenges ranging from geopolitical complexity to regulatory hurdles to due diligence minefields to integrational challenges. What's worse, countless potentially successful deals fail to be realized for the simple reason that no one ever thinks to suggest them. Clearly, the C-suite needs guidance, and the good news: help is at hand. M&A dealmakers can utilize AI algorithms that excel at making accurate predictions. Generative machine learning models—models that can automatically discover and learn the regularities or patterns in input data and produce new data consistent with those patterns—have been having a moment recently. Whether defeating grandmasters at chess, returning stunning photos in response to text prompts, or powering chatbots that can pass the Turing test, AI has demonstrated a remarkable talent for making highly accurate predictions about what should come next in a given sequence to achieve a given objective. All they require to accomplish this feat is past examples of input-output pairs—many past examples—and from this information, they can work out which inputs have predictive power and which actions will result in desired outcomes. To illustrate this process in action, here is a simplified example of how an AI "thinks" about the next move in a chess game: An illustration showing how AI figures out the next move in a chess game. The AI predictive model or algorithm uses information about the game's opening, the time remaining, material advantages, positional advantages, and endgame biases as inputs to determine the optimal move for every situation. How AI plans the next move in a computer chess game The days of most deals originating solely from investment bankers mixing and matching buyers, sellers, and acquisition targets will soon be over, and ultimately, AI will provide deeper insights and probabilities of deal success. ALEXIS CHRISTOFIDES At its heart, M&A deal origination is also about making scenario-based predictions. Like which companies when combined will form a more profitable entity. Or which companies possess individual elements that would be worth more if sold off separately? Although corporate structures and capabilities are immensely more complicated than the positions of pieces on a chessboard, the underlying principles remain the same. Given initial conditions, certain actions will be more or less likely to produce certain outcomes. The question, then, becomes when, not if, generative AI will drive M&A origination due to their unrivaled talent for making accurate predictions. In another simplified example, here is how an AI might successfully evaluate a potential merger or acquisition. The only thing separating the present from this AI-enlightened future is data. Specifically, the lack of usable training data. When the inputs needed to build a machine learning model are as straightforward as the location of pieces on a chessboard, it's relatively easy to input all the necessary information. However, corporate organizations defy such simple descriptions. While chessboards have thirty-two pieces placed on any of sixty-four squares, corporations comprise hundreds, thousands, or even hundreds of thousands of employees, plus physical and financial assets that span the globe. They possess all sorts of varying capabilities (manufacturing advantages, IT structures, distribution channels, sales partnerships, products, brands, leadership, and culture) and even within these capabilities, nuances abound. Kodak and Blockbuster, for example, were brand leaders within their field—until they weren't. Before AI

algorithms can work their magic to tease out which corporate capabilities are predictive of M&A success, they need a way to describe those specific capabilities in the first place. In other words, they need to identify the attributes and strengths of the companies in question. Although the data required to measure corporate capabilities will be difficult to collect, store, and process, it is definitely possible. "It's only a matter of time," says Alexis Christofides, UK Regional Head for TCS M&A Services. "Increasingly, companies are discovering ways to codify their capabilities, even for traditionally unquantifiable things like corporate culture. Sooner or later, all that data on 'e-mail sentiment analysis' and 'product time-to-market' will be thrown into a machine learning algorithm." In practice, the algorithms need not understand that they are measuring "company culture" when they input, for example, a hundred different data points on "median employee tenured stay" and "duration of new employee onboarding." Once corporate capabilities have been roughly approximated, it becomes easy for machines to connect inputs (company attributes) with outputs (the results of an M&A deal) and discover a formula to accurately predict which organizations will combine most successfully. Banking on AI for M&A success. "Humans will still have a role to play, of course—no model is foolproof, no large dataset is without errors," notes Christofides. "But the days of most deals originating solely from investment bankers mixing and matching buyers, sellers, and acquisition targets will soon be over, and ultimately, AI will provide deeper insights and probabilities of deal success." Not long from now, it will be algorithms reading the corporate tea leaves, guiding the origination of front-page, multi-billion-dollar M&A transactions, and no CEO anywhere will think to consecrate a deal without a machine validating—or suggesting—it first. Don't let the future catch you unprepared. Hybrid Intelligence Leveraging Big Data Analytics for M&A Value Creation Grappling with AI models The next Picasso won't be human! Looking to turn purpose into action? Theme Font size Line height =====================

Three ways to think about the workforce of the future

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frontline, and can collaborate more effectively with a broader range of ecosystem partners. What can companies do now to prepare their workforces for this future? We believe there are three priorities.   Step 1: Start thinking about what "the office" can and should be. Arguments for and against remote and office-based working have been raging since the pandemic. But much of this debate is not only unhelpful, but futile. Because the way people want to work is constantly changing. And it's being driven at a more fundamental level than any single company's hybrid working policy. To get out of this loop, companies need to recalibrate their thinking. Enabling people to work together effectively, regardless of location, should now be the primary objective. That means abandoning the entrenched idea of "the office" as a purely physical space, which is nothing more than a relic of the early 20th Century. Instead, the office becomes more like a collection of tools that are flexibly available, within both digital and physical spaces, to help people work in the most productive and effective way possible. Office real estate can then be more narrowly focused on the activities for which physical collaboration is truly needed and truly valuable. These spaces can also be smaller, easier to stand up and down quickly, and distributed over a greater number of locations to optimize accessibility. It's also vital these are genuinely hybrid spaces. In other words, that they're tailored not only to the needs of people who are physically present, but also to those who are connecting digitally—so that everyone enjoys the same level of experience, and can maximize their productivity whether they're working individually or collectively. Short term, that could be something as simple as better connectivity and more reliable video conferencing. But, longer term, technologies like virtual reality, augmented reality, and eventually holographic projections will be critical, ensuring a far more immersive, engaging and connected experience for everyone in the organization. Top-down command and control structures are quickly becoming obsolete. Step 2: Create a plan for immersive digital experiences. We've already seen many leading companies adopting these immersive collaboration technologies in practice. For instance, one major manufacturer of advanced digital hardware is using augmented and virtual reality to enable its geographically dispersed team of experts to collaborate on chip design via Microsoft HoloLens, transforming their productivity and speed. However, there's no doubt the underlying technology is still maturing, particularly on the hardware side. Headset size and weight, battery performance, charging time, and interoperability between platforms still need addressing. And more attention is needed on the physical impact of prolonged VR use, which studies have shown can disproportionately impact women—an important inclusivity hurdle that needs to be overcome. Mass consumer adoption is, therefore, likely to be some time away. Meta, for example, estimates the metaverse will reach a billion people, but not until the end of this decade. However, a 'wait and see' attitude to the technology would be misguided for several reasons. First, the technology is getting better all the time. And it will impact every industry and every business function. Disruption by faster, nimbler market entrants who understand this trajectory is a constant threat. Inaction or inertia can easily leave an organization stranded as the technology curve accelerates away. Second, the cost of experimentation is continuously falling. Via the cloud, companies have fast and cost-effective access to a growing range of building blocks for immersive experiences (voice to text, video object recognition, and so on) that would previously

have taken millions of dollars to develop. Finally, companies need to look beyond VR headsets. Immersive technology is evolving to include a whole range of form factors. This includes lightweight glasses, contact lenses, sensors and wearable devices (many potentially powered by body heat) as well as VR goggles for certain use cases. The concept shown below—developed for the TCS New York Marathon—shows how these technologies can be brought together to radically enhance a runner's experience.   An illustration of a concept developed for the TCS New York Marathon. It shows how a host of technologies can be brought together to radically enhance a runner's experience. These include digital twin technologies, 3D-printed shoes and meals, lightweight glasses, contact lenses, sensors and wearable devices (many potentially powered by body heat), VR goggles, clothing made from advanced materials, and more. Now, imagine the same for the worker of the future. These concepts will eventually extend to a huge range of consumer, leisure and work activities. So early adoption, experimentation and roadmap building should be a priority for every company.   Step 3: Make sure employees have the right skills for the new workspace. Ensuring workers and companies have the skills needed for the future workplace is a broad long-term question for learning institutions, governments, and society as a whole. But company leaders have a key role to play too. The priority is to recognize that the shift towards greater automation is inevitable, and will only accelerate. Leaders need to be planning for a future in which customer value is delivered through a seamless blend of AI-enabled automation, digital tools and human skills and expertise. Worker upskilling will be vital. Every employee, whatever their field of expertise or specialization, will need to be more comfortable working with digital platforms and immersive technologies, and using data to guide decision making. They'll also need to be willing to relinquish activities to artificial intelligence and/or robotics as machines start to reliably outperform humans. As this happens, softer human skills— creativity, curiosity, imagination, compassion, critical thinking—will become increasingly differentiating. The recent focus on STEM will need to be reframed to bring in more creative, ethical, and design-related skills and capabilities. The ability to constantly learn will become the most valuable meta skill any employee can acquire. Organizations will also need to consider more flexible workforce models to secure the skills they need. We already see interesting moves in this space. In European consumer banking, for example, companies are starting to institutionalize the idea of gig work as opposed to traditional bulk outsourcing. That allows them to engage, say, a single cloud architect to meet a specific need on a specific project for a specific period of time in a far more flexible way.   Don't wait for the future to happen–start making it. There's clearly a broader conversation to be had here about the interdependent relationship between the future of work and the future of organizations themselves. And the focus of that conversation is shifting in important ways—from profit to purpose, from hierarchies to networks, and from centralized control to federated empowerment. As this happens, individual agency, employee experience, work-life balance and wellbeing are becoming ever more critical to company success. And this is feeding back into the way companies are organized. The ability to constantly learn will become the most valuable meta skill any employee can acquire. For example, we've already seen one forward-thinking airline appoint a head of employee experience. By bridging historical siloes between HR and

enterprise technology, this move is designed to ensure employee needs always take center stage. More innovative structures like these are inevitable as companies continue to redefine the workplace for a new era of digitally empowered, intelligence-augmented workers. It's vital that every company, every leader, and every employee be part of this conversation. Change is coming. No business can afford to wait. Technology-led Great Employee Experiences for Future-ready Enterprises How Cloud Services Streamline the Execution of M&A Deals Making sense of disruptive innovations and technologies Five Cyber Strategy Considerations for the Metaverse Looking to turn purpose into action? Theme Font size Line height =====================

Maximizing value in MA&D with robust change management

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/consulting/white-paper/change-management-maximize-value-mergers-acquisitions-divestitures ----- In this article Unlock value in MA&D Role of change management Strategic programs Adopt a playbook Robust OCM About the authors Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Shawntelle Taylor Kathy Puckett Praveen Bhasin Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Shawntelle Taylor Engagement Manager, M&A Services, TCS

HIGHLIGHTS Strategic change management strategies and frameworks help organizations drive innovation and unlock value from MA&D transactions. Typically, MA&D transactions have aggressive timelines from deal inception to close. Whether it's resistance throughout all levels within the organization, inability to meet program objectives, or low performance and productivity, these transactions can be fraught with challenges. The focus for leaders of organizations engaging in MA&D has traditionally been on the hard side of the transaction, such as the functional business operation or IT infrastructure. Seasoned leaders with experience in MA&D can confidently assess and quantify the more tangible aspects of the program. However, they should not overlook the people and culture element of the equation. Successful outcomes are a result of both quantitative and qualitative aspects of MA&D transactions. As leaders assume a more proactive approach to change management, they should take into account key people and culture considerations that are vital in delivering success outcomes. Research shows that 70% to 90% of M&As fail to achieve their anticipated strategic and financial objectives. What are the reasons for this failure? They often lie in HR-related factors, such as incompatible cultures, poor management styles, low motivation, loss of key talent, lack of communication, diminished trust, and uncertainty of long-term goals. For a higher degree of success in MA&D with aggressive Day 1 Readiness timelines, organizations need a well-designed change management plan. The change management plan prepares, navigates, and manages an organization's people, including corporate culture, through the process of change. It provides leaders with a realistic measure and helps gauge the probability of success in realizing MA&D outcomes right from the start. MA&D transactions have increased due to favorable economic conditions, and global economic markets should anticipate this surge to continue in the future. How can this growing demand be met? Leaders must roll-out full-scale change management programs that are strategic, flexible, and agile enough to realize program objectives. Change management programs within MA&D, in the most practical sense and experience, are often only inclusive of communications plans, and managed in-house, relying on individual workstreams and business units to be executed and managed in silos. The change management team plays an evolutionary role, although fluid, during the various phases of the MA&D. Throughout, it has one goal: to effectively assess the change management strategy, share the vision, and ensure stakeholders are aligned, supported, and managed during the MA&D life cycle to realize expected value (see figure 1). An illustration showing how organization change management, or OCM, plays an evolving role as a co-partner, change agent, champion, and consort during the various phases of mergers, acquisitions, and divestitures. Throughout, its mission is to effectively assess the change management strategy, share the vision, and ensure stakeholders are supported during the mergers, acquisitions, and divestitures life cycle to realize expected value. As strategic partners and advisors, change management teams support leadership and project teams during MA&D with change management strategies, templates, and tools for Day-1 readiness. A Prosci research study indicates that 85% of participants did some measure of employee engagement, but less than half did so on a

regular cadence. The change management team—the 'unseen hand'— directs, leads, and guides the organization's change agents to engage, accurately assess, and intermittently measure employee engagement during MA&D transactions. The communications strategy and plan, for instance, should include cultural dimensions unique to individual stakeholders such as assertiveness—the degree to which an individual is expected to express their personal needs and welfare to others. Here, the change management team is the trusted strategic advisor.   Let's look at the five fundamental components of the organization change management (OCM) Day-1 readiness playbook that change management teams can leverage for successful MA&Ds: Instilling confidence in leaders during MA&D transactions Intelligent leaders acknowledge the role a change management framework plays in successfully guiding the organization through changes in culture and people during MA&D transactions. They proactively adopt change management programs that are tailored to fit their specific MA&D transactions, improving the overall health and outcomes of their deals. This approach offers intelligent leaders a true sense of confidence, successfully realizing targeted outcomes in these transactions.   Six principles to unlock value at a NewCo How AI will guide future M&A deals Divestiture Strategy: The Making of a Smooth Transition to Deal Value Mitigating cyber threats – A key to successful M&A deal Looking to turn purpose into action? Theme Font size Line height =====================

Better margins through strategic cost-cutting

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company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Mukesh Bhatt Engagement Director, Consulting & Services Integration, TCS Victor Geraldi Consulting Partner, Consulting & Services Integration, TCS You have these already downloaded We have sent you a copy of the report to your email again. HIGHLIGHTS Economic and geopolitical conditions worldwide are putting pressure on margins—a trend likely to continue for the foreseeable future. Rising input costs, price inflation, and continued uncertainties in supply chains continue to put tremendous strain on traditional margin improvement programs. Organizations that traditionally pursue arbitrary cost-cutting measures to manage margins are realizing that a defensive approach will not suffice. An arbitrary approach adds increased uncertainty to the fragile balance between growth, cost, and talent. Typically, companies' forecasted financial positions shape their cost-cutting programs, leading them to pursue a reactive and defensive approach. While this approach is sometimes required, enterprises need to be aware of the risks—most notably, the inability to sustain cost structure, which compromises the opportunity to build muscle and capabilities for uncertain times. As a result, companies that follow this path will continue to experience margin pressures. This calls for a new approach to cost-cutting that makes it a strategic tool within margin management. What's more: sustaining cost structure improvements will be imperative to maintain margins in an inflationary environment—especially for businesses with limited pricing power.   An illustration showing different approaches for optimizing costs. A cost-cutting exercise could be a reactive and defensive initiative aimed at achieving a quick return to business as usual after a period of disruption or a transformative strategic initiative launched while in good health to fund growth. However, for it to be meaningful, it calls for a new approach that makes cost cutting a strategic tool within margin management—a tool for sustainability, speed to value, and positive change. To manage margins, companies must take a transformative and strategic approach to cost-cutting that encompasses both structural and operational levers. This approach involves margin improvement programs that focus on building competitive advantage without negatively impacting growth, and that help companies maintain the fine balance between structural and operational levers with sustainability at the core, as shown in Figure 2. Structural levers look not only at the current state but also beyond it, to better position the business for transformational opportunities. Operational levers aim to improve near-term efficiency, simplification, and liquidity, while focusing on building foundational capabilities. While enterprises leverage structural and operational levers to reduce costs, they should be mindful that their actions don't inhibit their ability to pursue growth and innovation.   An illustration showing what strategic cost cutting entails. To manage margins successfully and sustainably, companies must take a transformative

and strategic approach to cost-cutting that encompasses both structural and operational levers. Structural levers such as operating models and governance look not only at the current state, but also beyond it, to better position the business for transformational opportunities. Operational levers such as organizational and business process simplification aim to improve near-term efficiency and liquidity, while focusing on building foundational capabilities. Companies should kick-start the margin improvement program as a pilot to gain self-advocacy, focusing on learning and obtaining feedback from the pilot before scaling the program. During the pilot, the margin improvement program should build foundational capabilities for spend visibility and governance. In the next stage, enterprises should scale to sustain the saving over the years, avoiding the fatigue of starting a new cost-cutting program each year. The margin improvement program should cover three stages: Pilot Give attention to prioritized areas first and not the entire profit and loss (P&L) statement. Select business unit (BU) or function with fewer spend levers. Focus on foundational capabilities, adoption, and feedback. Scale Refine and scale across the business lines Extend to both operational and structural levers. Focus on monitoring and building core capabilities. Sustain Continue process improvement and broadening scope. Implement sustainable capabilities to align with the results. Focus on strategic and industrialized capabilities   An illustration showing 3 stages in how companies should get started on their margin improvement program. Companies should kick-start it as a pilot to gain self-advocacy, focusing on learning and obtaining feedback before scaling the program. When they begin to refine and scale, they need to extend efforts to both operative and structural levers while focusing on monitoring and building core capabilities. Finally, they reach a level of sustainability, where they can continue making process improvements and broadening scope, implement sustainable capabilities, and focus on strategic and industrialized capabilities. To realize greater value, companies need to combine the top-down and bottom-up approaches. Traditionally, a top-down approach with benchmarks is used to size-the-prize. While this approach works at the executive level, it has failed to provide a meaningful answer on 'how' to find value. We recommend a holistic blend of the top-down and bottom-up approaches. Here, the top-down synthesizes financial data to provide where and how the value is shifting. On the other hand, operational data provides bottom-up proof points on cost optimization opportunities with a strategic link to operation and technology capabilities. Three areas that need to be considered in this combined approach are: Value targeting: Set the ambition, provide insights and answers to these questions: A) Is my cost structure competitive enough to support future business? B) Where is value going and what are our peers doing to contain costs? C) How should we keep a balance of cost, talent, growth, and liquidity? Value release: Identify the gaps in achieving the set ambition by performing a bottom-up analysis. Quantify prioritized savings with a clear action plan to realize the saving. Making simple process, policy, governance, and data changes helps realize value immediately. Value sustaining: Design and implement new business capabilities of zero-based budgeting, control, and monitoring to maintain a sustainable level of cost structure. For sustaining value, the key is to define and measure success with financial, operational, or behavioral metrics. An illustration of a cost optimization methodology that is a holistic blend of top-down and bottom-up approaches. It involves value targeting (set the

ambition); value release (identify the gaps in achieving the set ambition through a bottom-up analysis); and value sustaining (design and implement new business capabilities of zero-based budgeting, control, and monitoring to maintain a sustainable level of cost structure). For sustaining value, the key is to define and measure success with financial, operational, or behavioral metrics. Instead of arbitrary cost reductions, companies should take a strategic approach, which opens direct and tangible opportunities for savings and value-enabled outperformance. Successful margin improvement programs need to be viewed as a strategic priority or 'fuel for growth'. It shows a clear path ahead that involves re-investment, incentivizing participants, and offering a meaningful process that measures success and creates accountability. While this inspires meaningful dialogue among executives, it also helps organizations to take advantage of uncertainty in markets and position themselves to thrive during different business cycles. TCS 2021 Global Financial Leadership Study New Era in Finance: Watch CFOs Talk about Budget and AI in FP&A Automation in Finance: How CFOs Can Navigate Pandemic's Economic Storm Unlocking Business Value with TCS Cloud Strategy & Transformation Looking to turn purpose into action? Theme Font size Line height =====================

How to future-proof financial planning and analysis

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and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Mukesh Bhatt Engagement Director, Consulting, TCS Shipra Oberoi Engagement Manager, Consulting, TCS You have these already downloaded We have sent you a copy of the report to your email again. How can one transform the financial planning and analysis (FP&A) function to adjust to changing business needs without disrupting the core principles of decision-making? Today's business environment is characterized by increased uncertainty, complexity, and risk. CFOs and business leaders have long recognized the need to transform the FP&A function, but even organizations with the commitment to transform are realizing that traditional process improvement methods are no longer sufficient. A recent survey conducted by TCS with 750 global finance leaders across three regions and 14 industries highlighted the challenges. Our findings showed that stakeholder expectations on quality and speed of business insight are growing, but traditional FP&A methods and tools are not living up to these expectations. Stakeholder expectations of the quality and speed of business insights are growing, but traditional financial planning and analysis methods and tools are not living up to these expectations. Key findings of the TCS Global Financial Leadership Study show that 43% of forecasting activities are informed by intuition; 52% of companies surveyed can't rapidly create multiple detailed 'what-if' scenarios based on possible external factors; 49% can't reallocate resources quickly to meet changing business demands; and 50% can't deliver short-term forecasts. FP&A transformation programs in the past have used a siloed approach with point solutions, rather than addressing underlying data quality issues. This Band-Aid approach has introduced risks rather than opportunities. Despite redesigning the process and deploying point solutions, the outcome falls short of expectations. The traditional F&P approaches have not worked because they are: Finance only: Single-dimensional data set impairs FP&A from unfolding its full potential as an entrepreneurial management discipline. Too rigid and system-heavy: This prevents the organization from responding in an agile fashion to rapidly changing external parameters and business demands. Data quality issues: Trust and governance issues prevent FP&A from maturing into a dependable and sustainable strategic business function. Analytics not integrated: Misses out on being at the centre of strategic decision-making by generating value-adding business insight on demand. To be effective, FP&A transformation must catch up on the latest trends in decision making. Before embarking on the journey, FP&A leaders need to explore new technologies to gain lasting competitive advantage. Given the significant evolution in technologies, the FP&A function needs to fundamentally change how its services will be delivered today and beyond. The transformation should not only redefine the FP&A operating model and reduce inefficiencies, but also look around the corner for the next wave of opportunities. The two fundamental trends disrupting traditional decision-making are fast-advancing disruptive FP&A technologies and increasing demand for multi-dimensional business insights. For instance, to navigate this modern business environment, the FP&A

function must build capabilities that encompass early warning signals. These predictive analytics systems can be used to anticipate business cycle risks and allow organizations to respond proactively. Trends in disruptive technologies: Analytics: Combines heterogeneous data sets from internal and external sources to gain deeper insight Mobility: Provides access to information anytime, anywhere, or 'data on the move' Cloud: Allows for faster and more agile implementation cycles along with strategic flexibility in the use of software Visualization and collaboration: Presents insights and intuitive formats to establish a constant performance dialogue among decision makers. Predictive features: Leverages predictive models to anticipate likely future scenarios and assess sensitivity. Trends in business insights True business partner model: Merge financial, operational, and external data for richer business insights and expand the service function from a finance-focus into a true business partner model The need for speed: Establish a scalable analytical capability to provide business insights independent of monthly reporting cycles at the time of decision-making More flexible digital services: Revitalize the FP&A value proposition through digital service delivery channels and methods. Strategic data management: Utilize external and internal, structured and unstructured sources, and move from silo solutions to 'data lakes' Close integration with business and enhanced use of financial and operational data are cornerstones of FP&A transformation. The key elements of an integrated approach: 1. Assess the value of digital: Explore the value of digitally-enabled FP&A. 2. Refresh the vision: Reset FP&A objectives based on technology enablers. 3. Revise the operating model: Identify the changes that will be required to embed and operate digitally across the organization. 4. Plan for the change: Align the current initiative with the new one, and then plan the journey. 5. Execute the plan: Develop a sprint plan to build foundational and priority capabilities. Capitalizing on an agile, digitally enabled FP&A function will lead to significant opportunities. An illustration showing the benefits companies stand to gain when they transform their FP&A function into an agile, digitally enabled one. Benefits can include a 2-4X increase in staff productivity via automation; up to a 40% cost takeout that can be partially reinvested in innovation; 90% of reporting through self-service anytime, anywhere; 75% focus shifted from menial finance tasks to high-value ones with the potential to drive better business outcomes; and 80% predictive and prescriptive information delivered to businesses based on analytics. There is no "do nothing option" Stakeholder expectations of quality and speed of business insight will only grow as digitization progresses. To steer the business in a highly volatile and uncertain environment, the FP&A function needs a digital pivot to not only meet the need of today but for the needs of tomorrow. TCS 2021 Global Financial Leadership Study New Era in Finance: Watch CFOs Talk about Budget and AI in FP&A Automation in Finance: How CFOs Can Navigate Pandemic's Economic Storm Streamlining the financial closing process Looking to turn purpose into action? Theme Font size Line height =====================

Enable compliant data transfers in clinical R&D for pharma

Highlights In this article Globalized clinical trials Outsourcing clinical R&D Regulatory obstacles Compliant data transfers The way forward About the author Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Dr. Ali Ghanem Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Pharma companies need to ensure regulatory compliance in international data transfers during clinical trials. 6 MINS READ Dr. Ali Ghanem Business Analyst, Consulting, TCS You have these already downloaded We have sent you a copy of the report to your email again. With the rise in globalized clinical trials, the pharma industry needs to ensure compliant international data transfers. We are seeing changing regulations in clinical R&D, which promote increased efficiency, transparency, and inclusion of clinical trials. These evolving regulations also incentivize and offer benefits from global clinical trials—where only 31% of clinical trials registered on clinicaltrials.gov are US-only trials. And, in Europe, multi-national clinical trials comprise more than 29% of the continent's clinical R&D sector. Moreover, these regulations create a self-sustaining virtuous cycle that maximizes the societal and economic benefits of R&D in pharma. However, globalized clinical trials increase sponsors' exposure to associated risks and unforeseen challenges. The

primary challenge is navigating complex regulatory landscapes of jurisdictions in which trials are conducted. Although clinical trials are based on the universal aspects of the scientific method, they simultaneously represent complex projects with multi-faceted medical, societal, and legal aspects that are differently perceived and not uniformly regulated across various jurisdictions. What's more, clinical research collaboration or outsourcing is made possible with seamless data transfers on a real-time or daily basis. This enables transferring data to partners across borders making globalized clinical trials possible. With international data transfers being indispensable to globalized clinical trials, how can companies ensure compliance with its requirements?   Clinical R&D outsourcing is projected to continue growing at 11.4% CAGR to reach a market capitalization of $91B by the end of 2026. This exponential increase in outsourcing clinical R&D has given the drive to conduct trials on a global level. Outsourcing clinical R&D has become inevitable as it increases efficiency and controls the already massive spending that is required to get new drugs to the market. Like most businesses, the power law of 56% of the virtually-hyperconnected world has shaped the clinical outsourcing landscape. This means that for most data-oriented services a 'winner-takes-all' reality prevailed, with best-in-class suppliers becoming the trusted outsourcing partners of pharma companies. The migration of clinical R&D data to the cloud has given a huge edge to the rise of globalized clinical R&D service providers. This enables one to transcend international borders with the centralized, upscaled, and specialized processing and barrierless transfers of data, resulting in improved efficiency and reduced costs of clinical R&D. Hence, this free flow of data maximizes economic value of clinical R&D. In addition, it offers unprecedented scientific opportunity to simultaneously conduct trials on a larger, more inclusive population, resulting in more statistically powered results. That's not all. It also helps in getting much needed treatments to the international market at unimaginable speed. The international rollout of COVID-19 vaccines at record speed is a compelling example of how fast things could get when barriers are overcome.   Data protection and varied perceptions of the privacy of clinical subjects hinder regulatory harmonization. Medical regulatory bodies have recognized the enormous advantage of globalized clinical R&D. They support and endorse unified frameworks to regulate clinical trials. For instance, the Food and Drug Administration (FDA), European Medicines Agency (EMA) and other regulatory authorities adapt the International Council for Harmonization's (ICH) good clinical practices (GCP). Moreover, regulators are keen to make clinical trials and their results globally and readily accessible through centralized registries such as FDA's Clinical Trials online system. While huge strides have been made in harmonizing the medical and scientific rules that underpin clinical trials, certain societal and legal aspects are recalcitrant to global consensus. The topmost concern lies in patients' right to privacy and the adoption of mandatory measures to protect sensitive data on personal health. Unlike scientific and medical matters which are objective, the sense and boundaries of personal privacy are highly subjective issues which are differently perceived across countries and societies. This leads to high complexity and contrast in the international regulations on privacy and protection of personal data, including data transfer regulations and compliance prerequisites. To top it all, the applicable laws in each jurisdiction are subject to dynamic changes, which reflect the evolving

politics, public opinions, and culture of different countries. Data transfers, which are the bread and butter of clinical R&D collaboration, are governed by laws and regulations of data privacy, protection of both exporting and importing jurisdictions and relevant agreements between them. In other words, data privacy and protection regulations are now to clinical trials what customs and trade regulations have always been to international trade. Nowadays, international data transfers are usually required to collaborate with best-in-class clinical R&D service providers, even when the actual patient recruitment and treatment occurs in one country or jurisdiction. Driving regulatory compliance in clinical R&D data transfers. European pharma sets a strong example for a market with huge demand and potential for regulatory compliance in data transfers. This is largely due to the European Union's (EU) extensive personal data privacy and protection rules. The EU categorizes jurisdictions based on their perceived safety to the personal data of individuals in EU and legal protection of data transfers. It foresees legal and technical protective measures that dynamically evolve to cope with the ever-increasing data flow in a digitalized world. For TCS' European pharma clients, compliant data transfers are essential for supporting multinational clinical trials that represent 29.2% of ongoing clinical R&D activities. However, this is only a fraction of the larger number of clinical trials that require international data transfers to enable outsourcing. Nowadays, almost every major clinical trial requires international data transfers to one or more service providers. What's more, seamless international data transfers are essential to ensure international market access. For European pharma, that represents over 76% of its overall market, which are export markets outside Europe.   Make the best use of a trusted services provider for seamless data transfers in clinical R&D. To ensure seamless international data transfers in clinical R&D, pharma companies need to collaborate with a capable service provider like TCS. TCS' wide engagement with pharma majors and contextual and technical capabilities drives regulatory compliance of clinical data transfers from and to EU partners. We offer a wide portfolio of IT services, integrated approach to consulting, service delivery, and shared experiences for pharma companies across markets. Moreover, systemic solutions for compliant international data transfers will enable data sharing and access beyond clinical trials, covering health and wellness data. We envision a Health Data Marketplace (HDM), for instance, as a single point of access to health and wellness data. This will enable data and analytics as a service and promote data democratization to harness big data and hyperconnectivity for individuals' wellness and transform the business model for healthcare and pharma. With a remarkable presence in 55 countries, and as a leading excellence partner for pharma and life sciences, to tackle the regulatory challenge of international data transfers in clinical R&D through tailored, contextualized solutions. This will enable compliant and seamless data transfers, along with data democratization, for pharma companies in clinical R&Ds.   Data democratization and how I can revolutionize healthcare Addressing Complex Data Privacy Needs with TCS' Data Security Services Leverage cloud computing for a borderless enterprise Manage and Transfer Data Securely with AWS Transfer Family Looking to turn purpose into action? Theme Font size Line height ======================

AI collaboration: Three jobs of the future

Highlights In this article AI in the workplace The project starter The rule setter The edge-case specialist A new beginning About the author Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Adam Boostrom Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. The future of AI in the workplace will not be one of full automation but rather a collaboration between humans and machines. 5 MINS READ Adam Boostrom Business Analyst, Consulting & Services Integration, TCS You have these already downloaded We have sent you a copy of the report to your email again. Few technologies have captured the societal zeitgeist the way that ChatGPT did when it launched in November of 2022. Within five days of its release, OpenAI's breakthrough platform accumulated more than a million users. Only a month later, Microsoft announced a multi-year, multi-billion-dollar investment, alongside plans to "responsibly advance cutting-edge AI research and democratize AI as a new technology platform." Practical and ethical concerns regarding the use of artificial intelligence remain. ChatGPT, for instance, can be tricked into providing false, vulgar, and illegal information. However, there's little doubt that AI is here to stay.

Further iterations of the technology will allow firms to automate and optimize business processes in ways once considered unthinkable – leading some to proclaim "the end of work for humans" is near. Such pronouncements are premature. The future of AI in the workplace will not be one of full automation but rather a collaboration between humans and machines. In spite of its awesome algorithmic power, AI will not (and cannot) accomplish many of the most important tasks for businesses. Let's look at three jobs that humans will continue perform for many years to come.   In this job, humans serve as the visionary behind AI-enabled projects. Just like other chatbots, every conversation with ChatGPT begins the same way—with an empty box for text entry. If no initial text is entered, nothing will happen. The reason behind this, setting aside all the bells and whistles, is that complex AI models are nothing more than fancy calculators. They are machines designed to receive and process inputs (according to a series of very complicated equations) to produce outputs. If there are no inputs, there will be no outputs. Nothing in, nothing out. AI models are a means to an end—increase sales, enhance efficiency, and improve services— but they have no preference about which ends they achieve. They can be used to boost customer success, to invent new products, to promote equality, or to reduce greenhouse gas emissions, but they will be used for nothing if a human does not initiate their use in the first place. In time, AI models may be fed inputs from other, even more complicated AI models—like when a self-driving car changes course independently after a routing AI informs it of a crash up ahead. Even then, however, humans will have chosen the AI's initial objective of arriving safely at a destination. Humans set the eventual cascade in motion. Moreover, as anyone who's worked for a large organization knows, nothing happens without buy-in. Perhaps its senior management, investors, team leads—or all three—who must be convinced of a project's merits. AI, for its part, cannot argue for a project unless a human has programmed it to do so. Consequently, companies will need humans to act as their purpose-led project starters.   In this job, humans help put in place rules for AI. A few years ago, AlphaZero, Google's AI chess prodigy, defeated two other AI chess programs to become the world's highest rated chess player. This was noteworthy because AlphaZero famously received no instructions about chess strategy in its initial programming. It played against itself millions of times to learn how to win. AlphaZero's success would seem to indicate that, in the future, humans need not train the most powerful AIs – after all, humans had nothing to teach AlphaZero. This conclusion misses the point. Even in chess – especially in chess – there are rules which cannot be broken. When AlphaZero plays a game and notices that its king is in danger, it does not attempt to teleport the piece off the board to safety. Its programming forbids it from doing so. Similarly, when facing a tough opponent, it does not attempt to hack into the opponent's database to derail the opponent's threatening ability to calculate strong moves – this, too, is understood to be out-of-bounds. In business, as in life, there will always be rules and constraints. For example, projects may need to adhere to budgets, make use of specific resources, or avoid certain consequences. This is where future human workers must play a role. By programming the rules under which AIs can operate and setting the limits of what can and cannot be done, humans create the kind of bounded problem spaces that allow AIs to flourish. Without these guiderails in place, AIs will be unhelpful at best, and problematic at worst (like in 2016, when Twitter

users caused Microsoft's chatbot 'Tay' to spew hate speech because proper restrictions had not been put in place). Hence, humans will have an essential role to play as the AI rule setter.   In this job, humans serve as subject matter experts. Last year, Ford and Volkswagen decided to pull the plug on their plans to develop fully autonomous self-driving vehicles. Given the pace at which AI capabilities are growing, this move seems counterintuitive. After all, aren't fully autonomous vehicles getting ready for launch in the near future? On the contrary, Ford and Volkswagen have determined that fully autonomous vehicles will be more difficult to achieve than once thought. This difficulty stems from the ubiquity of edge cases. An 'edge case' is an unexpected or unforeseen situation. AIs excel at what they do because they have been exposed to vast amounts of historical data. Sometimes, however, changes in the present can cause historical data to lose its relevance. In the context of fully autonomous vehicles, this could mean a pedestrian acting unpredictably or a freak weather event. In business settings, edge cases could refer to a firm's unique exposure to changes in the multinational tax code, or to nascent employee wellness movements that affect worker productivity. Anytime the business landscape changes, new edge-case scenarios will arise. Some of these changes will be close enough in spirit to historical events that AIs will be able to account for them. Some, however, will be novel enough that they cause AIs to give misleading or detrimental outputs. This is why businesses will, for many years to come, rely on human oversight to review AI outputs. Edge-case specialists with domain expertise will be in demand long after AIs take over many business operations because AIs, while brilliant, are not infallible.   AIs will transform how companies do business, but they will not drive this transformation. Behind every machine will be an army of humans working to initiate, guide, and oversee AI functions. For organizations, the rise of AI will not herald the end of work, but rather, the beginning of a new cornucopia of human-led possibilities.   Three ways to think about the workforce of the future How AI will guide future M&A deals Hybrid Intelligence Driving digital-first transformation for enterprises with ML on AWS Cloud Looking to turn purpose into action? Theme Font size Line height
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Five ways to manage and achieve deal synergies in M&A

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positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Praveen Bhasin Julie Wang Claire Yan Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Praveen Bhasin Managing Partner, Consulting, TCS Julie Wang Director, Consulting, TCS Claire Yan Engagement Senior Manager, Consulting, TCS You have these already downloaded We have sent you a copy of the report to your email again. Synergy is such a significant factor in M&A that it's often the leading motive for corporate acquirers. As corporate buyers and private-equity firms consider acquisitions with the purpose of combining operations, synergy becomes a driving factor for their acquisition decisions and target selections. However, when it comes to managing synergies, the leadership team of the combined entities often fail to plan ahead, rationalize business cases, and track value creation. Whether the purpose of the M&A transaction is to leverage scale to expand the market footprint or to access and create new innovations and products, top-down synergy planning is critical for all acquirers – starting well before the dealmaking is done. Even more importantly, companies need to develop rigorous integration plans and establish a robust governance model to ensure not only that all targeted synergies are captured, but also that value creation is tracked and reported. Based on our years of experience with mergers and acquisitions across a variety of industries and geographies, we recommend five leading practices that can help companies attain deal synergies. Oftentimes, about 80% of synergies will come from 20% of synergy drivers. 1. Focus on the first six months, which are critical to develop a synergy capture framework. The acquirer's management team needs to have a clear vision for the future state of the combined company. This should include developing an integration framework that helps identify the "right" integration. The Integration Management Office (IMO) plays a critical role during the first six months to set the vision, guidelines, and framework. Every deal is unique, of course. But based on the transaction, the acquirer must first determine the appropriate degree of integration: full, vertical, horizontal, or autonomous. An illustration showing the connection

between synergy opportunities in an M&A and the type of integration between a parent company and the acquired one. The degree of integration —full (the target company is fully integrated into the parent company), vertical (where the target company is integrated into the parent company as part of its process, production, or supply chain), horizontal (where the target company is integrated horizontally as the parent company expands its marketplace and diversifies its offerings), or autonomous (where the target company retains its operational independence and brand with some integration for financial reporting)—determines the opportunities for driving synergies. There will be minimal synergies for autonomous integration; a focus on revenue synergies for horizontal integration; a focus on cost synergies for vertical integration; and maximum synergies encompassing both revenue and cost synergies for full integration. Within the first six months after the deal closes, management must consider establishing clear end-state goals for all business functions, operations, and technology areas, as well as a concrete plan for achieving the goals. This will help optimize the combined organization's operating costs and achieve its revenue growth objectives, which ultimately will drive higher synergies.   2. Develop a rigorous plan to manage synergies and capture quick wins. Because business and technology ecosystems are evolving at a fast pace, acquirers should apply the "80/20 rule" as they plan their first 12 to 18 months of activities. Oftentimes, a significant amount of synergy will come from a few key synergy drivers. Quick wins in operational synergies typically include but are not limited to: Reduction in office space Rationalization of contracts, professional services, and supplier agreements Reduction of headcount To limit the duration of integration, companies should set up and execute against a rigorous integration plan. This allows the organizations to avoid prolonged integration, which drives up one-time integration costs and creates negative synergies.   3. Consider a data-driven approach, which can provide actionable insights and untap innovative synergy opportunities. Many companies leverage complex financial models to track realized synergies. This helps them ensure that they are meeting the pre-set synergy targets. IMOs should consider leveraging data analytics to gain greater insight into the value and timing of realized synergies. The timing of synergy realization plays a significant role in the overall synergy management process. Understanding the implication of when the synergies are realized can help integration teams untap innovative synergy opportunities, as well as better gauge and manage the overall health and progress of the integration. Additionally, through insights derived from data analytics, IMOs could challenge the assumptions made by the management team before the deal closed, to redefine and evolve the NewCo's business performance metrics. 4. Treat synergy reporting as an essential component of synergy management – one that requires continuous monitoring on results with rigorous reporting mechanisms. Measuring and reporting synergy capture and value creation is a long-term continuous exercise that involves a more frequent cadence during the first 12 to 18 months post-deal close. By leveraging an integrated business performance dashboard, IMOs can provide customized reporting for the C-suite and each of the execution leaders.   An illustration shows a sample dashboard to track financial synergies. It highlights things like planned value, forecast value, and actual value by date. By leveraging an integrated business performance dashboard, the integration management office can measure and report synergy capture

and value creation, and provide customized reporting for the C-suite and each of the execution leaders. Accurate measurement and validation of synergy realization is crucial, so that the management team can identify roadblocks throughout the integration and ensure the KPIs for the acquisition's success are realized.   5. Develop robust governance to capture and manage synergies . Successful acquirers assign dedicated resources to manage synergy captures, and they also involve the executive management team to provide oversight and governance throughout the entire process. Best-in-class synergy tracking and management is a responsibility shared by the IMO, which provides cross-functional oversight, and the Financial Planning and Analysis (FP&A) team, which provides the financial insights. An illustration showing that achieving synergies is a collaborative effort. It requires several teams such as the financial planning and analysis team, cross-functional teams, the integration management office, and the executive management team working together for synergy realization. With such governance in place, as the integration progresses, the team can identify and mitigate earlier any risk of not meeting synergy targets or incurring negative synergies with appropriate contingency plans. Synergy "slippage" is more likely to occur as the complexity of the integration increases. For example, this might occur when a highly customized operating model for the NewCo is sought or when clashes emerge between the two combining cultures.   Synergy management is a collaborative effort between the combined company's leadership team and the integration team. Our experiences have taught us that many unforeseen events could impact synergy realization. Therefore, it is imperative for acquirers to consider these five best practices when it comes to manage integration synergies. By establishing a robust plan early on to capture quick wins and applying strict disciplines to continuously measure, validate and report on synergy results, combined companies can meet or exceed synergy targets.   How change management can maximize value in MA&D How AI will guide future M&A deals Six principles to unlock value at a NewCo Mitigating cyber threats – A key to successful M&A deal Looking to turn purpose into action? Theme Font size Line height =====================

How empathy can improve performance management

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prompt and capture these kinds of conversations around emerging issues. The key is to make sure these tools are used effectively and regularly where possible. As HR professionals, we are often called to either train managers or redesign and reimagine a performance and goal management system. It needs to be applied to the entire organization and must provide a baseline of performance where everyone understands how people are doing and why the company is performing the way it is. As with any kind of key signal on a dashboard, it should follow some kind of rigor. Clearly, all good management-employee conversations around performance should be rooted in specifics. And all good performance management systems must ultimately tell a story not just of one employee's experience, but the experience of the entire organization. Good performance management systems do more than tell a story of one employee's experience. They reflect the experience of the entire organization. How context can be integrated into performance management Usually, our work in updating these systems starts with the goal of making sure employees and managers are talking regularly and updating each other on how things are going. The year-end review is not the time to discover that goals weren't met – that should have been recognized long before, and managers and employees should have had conversations about how to correct course if possible. A prompt to seek out context is useful: Think about prompting employees and managers to discuss whether the business changed in some way that could have had a trickle-down effect on that employee's workflow or priorities. Maybe there was a shift in demand that made a specific goal less urgent? Perhaps another key issue is that the employee might need to have undergone additional learning or skill development, or might have been overwhelmed due to a change in role or team support. If an employee performed successfully but could not achieve their goal due to external factors, perhaps an organization should adjust performance ratings—and resulting rewards and compensation—to account for that context? After all, if people do what they were supposed to but were held back through no fault of their own, shouldn't that be recognized? That's why considering context matters—it can tell employees that their effort and hard work is recognized. That builds a stronger relationship and employee experience—and the kind of loyalty and retention that every organization needs, especially among its top performers. Making room for stronger relationships Finally, make room for empathy. Managers should generally be aware of the kinds of out-of-work events that can impact performance. However, companies shouldn't assume that conversations about those events are always happening. A good performance management system prompts empathetic conversations so that employees can work with their managers to flexibly meet goals, and so that managers can make adjustments to allow employees to perform to their potential. Some key empathy-building conversations managers might consider: Do you feel you have what you need from me to get the job done? Are you empowered to take risks that will build your career? Are there ways we need to build your workflows so they can be done on schedule? Of course, these conversations must be done with great care. Any employment lawyer would want managers to take note of and escalate requests for special accommodations related to disability, for example. This type of performance management system also helps managers. People may be reluctant to share their own struggles and misses; it's human nature to seek out excuses. But a good performance management system makes it incumbent on both the employee

and manager to raise those issues regularly, document them, and adjust to them. In short, accountability on context is a two-way street. The goal here is to help build and round out the narrative of an employee's experience—how did the year go, what could have been done better, what was learned, and where do we go from here? Such a narrative must take into account the context of the business—and an uncertain world, it seems. It also depends on some of the elements that we increasingly know is part of our work persona—everything else that is happening in our lives. It's true that building context and empathy into performance management systems may not work for every organization. But even if these do not get factored into formal reviews, at the very least these should be considered when discussing and documenting performance, and people managers should be aware of their power to transform their team's work.   Nip employee attrition in the bud Three ways to think about the workforce of the future How Digital Workplaces Can Improve Business Results TCS Cognitive HR: Reimagining the HR Function for Better EX Looking to turn purpose into action? Theme Font size Line height =====================

Three keys for a sustainability-focused operating model

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committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Adopt a top-down approach that reimagines the operating model to implement sustainability initiatives in a profitable way. 5 MINS READ Dhaval Jindal Business Consultant, Cloud Strategy and Transformation, TCS Parthiv Shah Global Managing Partner, Cloud Strategy and Transformation, TCS Surendra Kulkarni Consulting Partner, Cloud Strategy and Transformation, TCS You have these already downloaded We have sent you a copy of the report to your email again. Some businesses choose sustainable practices because of ideological beliefs and values, others do so to comply with regulations and ecosystem pressure. By adopting sustainability practices, businesses can eventually bring in value and realize benefits that include: Brand building Projects a "doing good" image and improves reputation by showing their commitment to environmental protection, social justice, and good governance. Customers, especially those from Gen Z, are more environment-conscious and willing to pay higher for sustainable products. Moreover, a sustainable, healthier work environment attracts employees of the right caliber, reducing stress and improving employee morale. Access to capital Improves the company's position to raise funds from venture capitalists, private equity, debt, and equity markets. Interestingly, market participants are increasingly focusing on sustainable investing, which looks at companies' ratings in sustainability and balances risks with potential returns. Operating efficiency and risk management Utilizes and conserves resources properly for efficient, streamlined operations and reduced operating costs. Moreover, sustainability can also mean self-sufficiency or stability in the long-term. Organizations can mitigate risk through good governance and business practices that can, for instance, limit climate vulnerabilities or avoid social conflicts. Regulatory compliance Protects the environment through regulations enacted by an increasing number of state and federal government agencies. The European Union (EU) is at the forefront in making key changes in sustainability legislation and regulations. This will affect businesses like International Sustainability Standards Board's (ISSB) Sustainability Disclosure, the EU Taxonomy's Climate Delegated Act, Sustainable Finance Disclosure Regulation (SFDR), and Corporate Sustainability Reporting Directive (CSRD). Businesses need to adopt sustainability best practices that will enable them to adhere to regulations and guidelines. An illustration showing the benefits companies stand to gain from adopting sustainability practices over a period of time. The Y-axis is value and the X-axis is time and the graph shows that rising value starts with compliance with regulatory requirements, moves up with operating efficiency and risk management, rises higher with access to capital, and reaches the highest point with brand building. global consumers are willing to pay more for sustainable products. trillion ESG assets, a third of global assets under management, by 2025. ESG services engagements will require a managed services component by 2025. Beyond doubt, weaving sustainability in an organization's DNA offers exponential benefits. However,

implementing a robust sustainability program has multiple challenges and complexities involved. Some of these challenges that organizations face today include: Adopt the right strategy, tactics, and approach to overcome challenges in implementing sustainability programs. To effectively embed, drive, and extract value from sustainability, it needs to be imprinted in the organizational DNA. This calls for reimagining the operating model and will require executive and operational ownership, sound governance, and reporting of regulatory compliance. By doing so, organizations can successfully weave sustainability in their operating structure and deliver desired results. An illustration showing the core elements required for successful sustainability programs. Effectively embedding, driving, and extracting value from sustainability requires executive and operational ownership, sound governance, and regulatory compliance and audit. It requires enablers such as data observability and effective change management. Execution based on sustainability value drivers and tracking KPIs with digital solutions are also critical components.   1. Establish a solid foundation with leadership alignment, vision, and governance Executive sponsorship is the key to successfully governing, executing, and measuring sustainability. 2. Leverage change management and data observability as enablers Implement a change management program to effectively manage and track all sustainability initiatives. Throughout, the aim must be to: Sustainability-related data is mostly maintained in silos for each function or use case like carbon accounting, supplier audit, or life cycle assessment, making it accessible to specific users, and creating barriers to information sharing and collaboration across functions. Data quality often suffers due to inconsistencies in data that may overlap across silos, making it hard for business leaders to get a holistic view. To address this, establish a robust and business-aligned data strategy for efficient management and utilization of data, simplified data integration ETL, reduced technology and data management costs, and common data standards and policies. 3. Drive execution based on sustainability value drivers and track results with digital solutions: Reimagining the business function embeds sustainability throughout the organization. Each business function is empowered to meet their share of the goals. This entails identifying sustainability value drivers and digital solutions that enable them, SMART KPIs to track and measure efficacy, and the digital technologies to implement these solutions for each business function. Figure 3 represents this construct for a manufacturing organization: Let's look at three steps that are crucial to reimagine the business function construct. Step 1: Identification and prioritization of sustainability initiatives Identify sustainability initiatives aligned to the organization's strategy and vision. While each industry requires contextualized initiatives, there are several initiatives that span across industries as shown in figure 4. For example, the BFSI industry can adopt specific initiatives like sustainable lending, sustainable investing portfolio, and additionally adopt cross-industry common initiatives like water management, transportation optimization, and green data centers. Step 2: Implementation of digital technologies Once identified and prioritized, leverage various cloud and digital technologies (individual or combination) to implement these solutions. Moreover, enterprises can exit data centers and migrate their IT infrastructure to hyperscalers like Amazon Web Services (AWS), Google Cloud, or Microsoft Azure, which have their own sustainability targets, indirectly enabling enterprises to reduce their carbon

footprint.   Step 3: Tracking of SMART KPIs Define metrics to track sustainability initiatives, including: These metrics help track the results of implemented sustainability solutions and report them through interactive dashboards for real-time visibility and improvement or tweaking of the solutions. What's more, enterprises can calculate their carbon footprint and manage reports efficiently with environmental, social and governance (ESG) reporting services from hyperscalers like Microsoft Sustainability Manager, Google Cloud Carbon Footprint and AWS Customer Carbon Footprint Tool. Truly sustainable enterprises need to be profitable. It's time to move beyond the headlines and symbolic initiatives. Sustainability needs to be embedded into enterprises' daily operations and driven through a reimagined operating model. This offers a practical way for them to ensure compliance and realize operational efficiencies, while building a strong brand image. World Sustainability Day: Our Pledge for Building a Sustainable Future DSI report on digital sustainability and its importance CSR – A Stepping Stone towards Corporate Sustainability Creating a Sustainable Future with Energy Management Solutions Learn more about TCS' consulting services Theme Font size Line height =====================

How to manage cybersecurity cloud across the M&A deal lifecycle

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security vulnerabilities, the target entity's leadership can be overly trusting of their cybersecurity posture. In fact, a recent study indicates the following: "...the more successful a company is and the more confident its executives feel about its posture toward both internal cyber risks and external hacker threats, the more likely the company is to trust its data and processes to the cloud." -Cyber Confidence TCS Risk & Cybersecurity, 2022 But the reality is "confidence" does not really equal "security." To bring actual cybersecurity maturity to meet leadership's confidence level, M&A leaders and deal sponsors should include Single Sign On (SSO) and Cloud Infrastructure Entitlements Management (CIEM) to manage authentication and privileged access with the cyber cloud strategy. In addition, internal cybersecurity policies should be updated to include controls for the use of cloud with information management, data privacy, and access security protocols. Lastly, the Governance, Risk and Compliance (GRC) team and tools should be updated accordingly. Planning cybersecurity cloud as the deal close approaches Once the pre-deal stage is reached and the transaction is signed, the preparation for day 1 can begin. Part of day 1 planning should include a detailed and well-thought-out cybersecurity plan for the company's acquisition, merger, or separation, which then allows the M&A team's cybersecurity function to work in tandem with the overall risk management and PMO offices. The cyber function should plan its own cyber digital roadmap with a focus on cloud-enabled security, which will not only include remediation of risks but also identify opportunities to transform. For example, the roadmap might include tying together disparate application platforms with proprietary authentication methods. The day 1 plan should design for the future, and seek to do more than just roll out new cybersecurity solutions. It can transform existing groups or functions into more cyber-focused teams and workstreams. Cloud-specific TSAs (Transitional Services Agreement) also can be generated to streamline the migration of users to new environments efficiently and securely. Any cloud resources or services that will change ownership or contracts will include a TSA defining how the transition will be facilitated to ensure appropriate uptime and maintain the integrity of user privileges. Embedding cybersecurity cloud after the deal closes At this point in the M&A process, forming the new entity should begin, and day 1 plans should be implemented according to the approved roadmaps. The overall roadmap, along with the cybersecurity roadmap, should offer guidance for creating the new entity's target operating model, including how cloud will be secured in the new entity's operations. Steps addressing the provisioning of the overall cyber perimeter and granting access rights should be built into the cybersecurity cloud roadmap. These steps should define timing and effort, key resources, and prioritization during the overall integration or separation process. As much as possible, M&A leaders and deal sponsors should implement a cloud-first approach. A cloud-first approach focuses on a one-function, one-solution strategy to unify individual workstreams with their own, singular application. Cloud-first initiatives are then implemented via the cybersecurity function within the newly created entity according to the day 1 plan. Build long-term strategies for cybersecurity cloud Each workstream of an M&A project needs to consider the long-term impacts to the new entity which could be caused by increases in volume or market share. Plans should be in place for locking down the cloud environments to minimize or avoid those impacts. In short, M&A professionals should include

four strategies during the design and integration planning phase: Cloud platforms represent the forefront of efficiency and high ROI for a modern company's core functions, but they are only as valuable as the cyber strategies that secure them. M&A teams need to view them as necessary aspects of the same paradigm to ensure robust, safe operations that maximize productivity, and therefore, investment value. Mitigating cyber threats – A key to successful M&A deal How change management can maximize value in MA&D Step up cyber defense with TCS ransomware control matrix The Making of a Cyber Resilient Organization Learn how we can help you build cybersecurity cloud into every step of the deal life cycle. Theme Font size Line height =====================

Why finance transformation starts with the chart of accounts

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/consulting/white-paper/finance-transformation-chart-of-accounts ----- Services TCS Consulting Services to Achieve Success in the Digital Era Highlights On this page Why redesign the CoA? The CFO's concern Efficient CoA designs Inside-out approach Holistic benefits About the authors Transformation starts here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Krishnan Venkatraman Kapil Kumar Varun Patel Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Learn how our inside-out

approach can help you redesign your CoA for the future. 5 MINS READ Krishnan Venkatraman Partner, Consulting Unit, TCS Kapil Kumar Director, Consulting Unit, TCS Varun Patel Manager, Consulting Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again.   Gaining the visibility needed for financial transformation Maintaining a singular chart of accounts (CoA) that enables consistent financial reporting across growing businesses is a challenging task for CFOs. Growth strategies such as mergers and acquisitions (M&A) can cause decentralized, complex, and expensive back-office operations, which result in multiple CoAs that must be maintained and integrated across systems. This impacts a finance organization's operations and business performance. To add to this, many organizations are still buckling under the financial strain brought on by the pandemic. Real-time data and agile reporting forecasting are not only a matter of competitive advantage, but also of survival. CFOs need a singular and flexible CoA to gain the visibility they need to make strategic decisions and drive financial transformation. Creating a singular view to reduce costs and improve decision making M&A transactions impact an organization's financial statements, accounting systems, taxation, asset valuations, and compliance. Organizations possessing multiple CoAs risk losing track of important financial information. In addition, since CoA structures are not easily changed in the ERP, finance leaders are forced to find time-consuming workarounds, such as complicated mapping rules, series of applications, and detailed manual spreadsheet analysis. These workarounds increase the costs of finance operations and delay information needed for decision making. Let's look at an example here. For a retail company, it is important to know how effective their cash conversion cycle is, particularly during product planning and management of sales channels. A robust CoA can help recognize revenue sources quickly and make informed procurement decisions based on product and location. Therefore, redesigning the CoA to create a singular view is critical. CFOs and finance leaders can only improve business performance if they can measure financial activity effectively, and the CoA ultimately determines what financial data they will have visibility to measure. Designing a CoA that meets business needs A redesign of the CoA can help organizations optimize and drive value from the finance office. An ideal CoA design should: A data-driven and contextualized approach to prevent business disruption CFOs looking to redesign and create a flexible and singular CoA that drives financial transformation require an inside-out approach—one that is data-driven, contextualized, and aligns with the business strategy. The key considerations for this approach are: 1. Assess finance maturity Evaluate the existing ERP systems along process, control, and technology parameters to unearth possible process and reporting bottlenecks that a new CoA design must address. 2. Propose a global CoA design Conduct a series of cross-functional and collaborative workshops across finance functions to understand how different users leverage the CoA for their business needs. This should include areas such as budgeting, planning, consolidation, reporting, and performance tracking at both statutory and managerial level. At this phase, a CoA structure that minimizes or eliminates the dependency on manual efforts to meet financial and management needs can be proposed. 3. Conduct value analysis Outline the business benefits from the new segment structure, hierarchies, and rationalized segment values. The focus should be ensuring the new CoA

segment design is mutually exclusive and completely exhaustive—from reporting to monitoring business performance. Critical business objectives can be segregated to focus on key KPIs or metrics and the CoA's visibility to them. This analysis also serves to pressure test the flexibility and scalability of the CoA structure for future readiness. 4. Develop an impact assessment Execute a limited proof of concept of the new CoA across a single business unit to assess the amount of effort required to implement the new structure across the organization. Determine the number of ERPs, business intelligence tools, and other ancillary applications affected by the CoA change. A review of the connections across these systems opens opportunities to retire eligible upstream and downstream systems, as well as rationalize reports. The impact assessment provides a detailed view into the implementation cost, effort, and cost saving potential for the new CoA by minimizing technology assumptions. 5. Create a roadmap for implementation Develop an organization-specific roadmap to determine "how", "where", and "when" the CoA rollout should take place. Critical questions must be addressed to determine how the new CoA design will be rolled out and integrated with the existing landscape, without disrupting business operations. Findings from the ERP maturity assessment should help evaluate where—or which system should first house the revamped CoA structure and how data should flow to and from it. The roadmap must also consider how the CoA implementation will fit in with the organization's overall transformation journey. A broader enterprise view is necessary to examine cross-program implications and its effects when the rollout takes place. Being sensitive to these considerations will ensure the cost saving potential and value realization is tightly aligned to the rollout strategy. Taking proactive steps to future-proof the CoA and enable business growth Redesigning the CoA can help organizations streamline their finance operations while significantly improving data visibility, consistency, and standardization. It creates opportunities to consolidate ERPs, rationalize BI tools, standardize shared services, and evaluate structural changes to the organization. A well-designed CoA will optimize finance operations by reducing, or even eliminating, the need for manual intervention during month-end close, consolidation, and reconciliation activities. Finance leaders can expect enhanced levels of monitoring capabilities, expanded coverage of KPIs, improved data quality, and streamlined FP& A activities. Taking proactive steps to future-proof the CoA is essential to ensure it remains flexible, scalable, and closely aligned with your organization's business strategy as the business grows. How to Future-proof Financial Planning and Analysis How to Manage Margins Better with Strategic Cost-cutting New Era in Finance: Watch CFOs Talk about Budget and AI in FP&A Finance and Global Shared Services Transformation Re-design a flexible and singular chart of accounts (CoA) to start your finance transformation journey. Theme Font size Line height =====================

Six ways cloud transforms pharma partnerships

Services TCS Consulting Services to Achieve Success in the Digital Era Highlights On this page Powering partnerships Cloud platforms Collaboration boosts Path forward About the authors Transformation starts here TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Brijesh Patel Sharad Kumar Gangwar Marty Samadder Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Learn how pharmaceutical companies can leverage cloud platforms to strengthen their collaboration with contract manufacturers. 8 MINS READ Brijesh Patel Managing Consultant, Cloud Strategy and Digital Transformation, TCS Sharad Kumar Gangwar Engagement Manager, Cloud Strategy and Digital Transformation, TCS Marty Samadder Engagement Director, Cloud Strategy and Digital Transformation, TCS You have these already downloaded We have sent you a copy of the report to your email again.   Understanding the need for improved collaboration between pharmaceutical companies and contract manufacturers Large pharmaceutical companies work with hundreds of external contract manufacturers to achieve fast and cost-effective drug manufacturing. They are looking to improve visibility, control, and standardization across the sourcing, manufacturing, and distribution value chain. Contractors' capabilities and the quality and price of their services

rarely provide competitive advantage to pharmaceutical companies. To be competitive, pharmaceutical companies need to focus on customer service. Keeping this in focus, these companies are evolving their relationship with contract manufacturers from one-dimensional product outsourcing into comprehensive partnerships. An illustration showing that pharma companies are evolving their relationship with contract manufacturers, going beyond just product outsourcing to form comprehensive partnerships in the areas of research and development (R&D), clinical trials, surveillance, and even product launch and marketing. Moreover, pharmaceutical companies can leverage a platform that enables process improvements and digitalization, reducing manual efforts, enabling real-time visibility of data and processes, and establishing standardization and control over value chains. These digital platforms can power intelligent value chain networks for improved time to market, superior customer service and increased revenue for pharma companies. What's more, this platform-based transformation allows them to focus on their core business, especially research and development (R&D), clinical trials, and marketing, while trusting their relationship with contract manufacturers for fast and cost-effective drug manufacturing. Strengthening partnerships with cloud-based platform solutions Let's look at six digital advancements that can transform the partnership between pharmaceutical companies and contract manufacturers for streamlined drug manufacturing and revenue growth: 1. Automate interactions using cloud platforms with machine learning (ML) services Pharmaceutical companies and contractors engage in many non-standardized modes of interactions in the domains of quality and change management, manufacturing, logistics, finance, and technology transfer. Typically, this involves the exchange of many forms, reports, and documents throughout the manufacturing value chain. For efficient interactions, companies can leverage a cloud platform with ML services to enable intelligent content extraction and digital document processing (see figure 2). This will help extract highly relevant information for various use cases, reducing manual efforts, improving quality and data integration to standardize interactions for enhanced partnerships with contract manufacturers. An illustration showing how pharma companies can leverage a cloud platform with machine learning (ML) services to enable intelligent data extraction and digital document processing. This will help improve data integration, process orchestration, and process transparency to standardize and automate interactions between pharmaceutical companies and contractors. 2. Break process, data, and system silos using process orchestration on cloud platforms Pharma companies interact with partners and contractors through function-based siloed processes, systems, and data. To break these silos, they can use a centralized, cloud-based platform with automation, orchestration, and visualization capabilities for process interactions across their functions and with external contract manufacturers. This allows personas such as supply chain managers, procurement and logistics heads, and quality approvers of pharmaceutical companies to collaborate both internally within their organization and externally with members of the contract manufacturer organization. 3. Manage operational complexity using 5G, edge computing, and cloud platforms Operational complexities in drug manufacturing are on the rise due to which value from siloed operational technology (OT) and information technology (IT) stacks are yet to be fully realized. With the growth of hardware and software that are embedded in the ecosystem, such

as smart connected devices, pharmaceutical companies are facing challenges in scaling digital transformation pilots and undertaking complex workarounds that include detailed spreadsheets and time-consuming manual activities. Cloud, edge computing, and 5G technologies-enabled platforms can accelerate the convergence of OT and IT, boost innovation, and manage this complexity to achieve the desired operational and financial benefits from the Industry 4.0 revolution. 4. Enable accurate technology transfers using augmented and virtual reality cloud platforms Technology transfers refer to a series of knowledge transfers from pharmaceutical companies to contract manufacturers on drugs and its established manufacturing processes. These transfers are becoming increasingly difficult for pharma companies due to process and product complexities, and the use of documented standard operating procedures (SOPs) and work instructions. Moreover, disconnected workers and prevalent documentation-based knowledge sharing, tracking, and validation processes result in inaccurate or insufficient technology transfers, delaying drug production. Augmented reality (AR), virtual reality (VR), and digital workflow-enabled solutions that are interconnected with cloud platforms allow workers to interact through digital overlays on equipment, eliminating paper-based instructions, and recording, tracking, review, and validation of data. 5. Enhance transparency using API and analytics cloud platforms Pharmaceutical companies need greater visibility and control over the quality of drug production processes of contract manufacturers. In pharma and medical device manufacturing, it is extremely challenging to monitor, visualize, and control the value chain from suppliers to patients to ensure drug quality. For example, monitoring and controlling the variations in raw material and manufacturing processes is difficult due to disparate processes and widely dispersed data. Additionally, manual activities and asynchronous communication channels such as emails and online chats further complicate the problem of visibility and control. Cloud-based collaboration platforms with API connectivity and near real-time analytics capabilities can help gain transparency and control over the quality of drugs. 6. Improve data exchange using cloud data platforms Due to legacy data-sharing establishments or discrete data models, companies are at a disadvantage because it hampers innovation, time to market, and revenue growth. To overcome these challenges, pharma companies can utilize cloud-based platforms with APIs, integration, and automation capabilities to connect an ecosystem of applications, data, and devices. Furthermore, they can use cloud as a data enabler and accelerator with the use of case-specific cloud-enabled architecture archetypes—data lakes, cloud-native data warehouse, data mesh, and data fabric. Steps pharmaceutical companies should take to improve collaborations with contract manufacturers Pharmaceutical companies need to take four key measures that cover all aspects from the initial business case to continuous improvement of partnerships with contract manufacturers: Pharma companies can then get started (see figure 3) to successfully deploy an ecosystem of managed cloud platforms that enhance pharma-contract manufacturer collaborations. Stage 1: Pilot Run a pilot program with 2-3 contract manufacturers to build a cloud platform that supports use cases to enable digital collaboration. Stage 2: Scale up Industrialize the cloud platform and operations, onboarding more contract manufacturers to the cloud platform for enhanced partnership. An illustration detailing a two-step approach to build a cloud-based ecosystem for enhanced pharma-contract

manufacturer partnerships. In the first stage, pharma companies can run a pilot with 2-3 contract manufacturers to build a cloud platform that supports use cases for digital collaboration. In the second, they can scale up by industrializing the cloud operations and onboarding more contract manufacturers to the cloud platform. Adopting a consulting-led approach to successfully deploy an ecosystem of managed cloud platforms An ecosystem of managed cloud platforms offers pharmaceutical companies enhanced collaboration with contract manufacturers, advanced technology capabilities, and improved business focus. On this path to transformation, companies need to adopt a consulting-led approach to design, build, and implement this ecosystem. As a result, they can enhance customer services, improve time to market, reduce costs, and increase revenue. Adopting New Pharmaceutical Commercial Models to Outpace Change Pharma Firms Switch Gears from Response to Transformation Human Sensing - Enhancing the agility of pharma value chain Digital Strategy Framework for Life Sciences Companies Looking to turn purpose into action? Theme Font size Line height =====================

Five ways to attract talent with better candidate experience

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analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Looking to hire top talent? We share ways to use technology to hire and keep the talent you need. 4 MINS READ Jerry Storvold Engagement Manager You have these already downloaded We have sent you a copy of the report to your email again.   Set your company up to attract top talent In today's job market, organizations face ever-increasing competition to attract and retain top talent. According to the U.S. Bureau of Labor Statistics, the unemployment rate is 3.5%—a level not seen since 1969—and in 2022, 32% of the workforce voluntary left their role. The European Commission reports unemployment at 5.9% and OECD reports the global rate at 4.8%. As companies struggle to hire for new roles or backfill employees who have resigned, one of the biggest differentiators is providing a positive candidate experience—including everything from the initial application to onboarding. A positive candidate experience can make a huge difference in attracting high-quality candidates, improving your organization's reputation, and onboarding candidates who are a good fit. Conversely, a negative candidate experience can cause candidates to drop out of the recruitment process and can create a negative impression of your brand. Based on my experience working with companies across many industries and around the world, here are a few ways to use technology and process optimization to improve the candidate experience and help your organization stand out.   The U.S. unemployment rate is just 3.5%—a low level not seen since 1969, according to the U.S. Bureau of Labor Statistics.   1. Streamline the application process One of the biggest complaints recruiting teams hear from candidates is the length and complexity of the application process. Streamlining the application process by reducing the number of steps and eliminating unnecessary questions can make a huge difference. A world-class talent management suite can be a big help here. Look for integrations that will allow for data to be collected once and passed from one module to the next. Not only will this simplify the process for candidates, it also can greatly reduce confusion and errors. A well-designed process also can reduce cycle times and increase candidate throughput.   2. Communicate with candidates at every step of the hiring process Candidates want to know where they stand in the hiring process. Regular communication can help keep candidates engaged and informed. Send automated emails and or texts to let candidates know when their application has been received, when they move to the next stage, and if they are no longer being considered. Make sure to personalize the communications as much as possible. Consider, too, measuring the time spent in each step of your process. You can use those details to create a candidate "trail guide" that includes typical number of days for each stage of the journey. This information can help candidates understand their status, and it can help your organization identify ways to address bottlenecks and reduce turnaround times.   3. Provide constructive feedback to strong candidates that you reject If a candidate is not selected for a position, providing constructive feedback can help them improve their job search. Establish a way for recruiting teams to be specific about why candidates were not selected and offer suggestions on how they can improve. This shows candidates that you care about their professional

development. A candidate who gets rejected in a productive way may recommend the company to their friends or later decide to apply for a role that's a better fit. There are ways to automate this feedback by refining your job disposition codes and creating tailored templates for communication at every step of the process. However, it's always great to inject human interaction whenever possible to keep things real. 4. Use interactive technology to enhance the candidate selection experience Interactive technology can be used to enhance the candidate experience in many ways. For example, video interviewing software can be used to conduct remove interviews, saving time and money for both the candidate and the company. An artificial intelligence platform that manages interview scheduling can save time and money and help the candidate feel more control over the process. Chatbots can be used to provide candidates with instant answers to their questions. AI technology that marches resumes to job descriptions is another fast-growing offering, which can be valuable in many situations. These types of technologies, if implemented well, can build confidence in the way your organization is being run and how well you will be able to transform as the business landscape changes. 5. Provide a positive experience during the onboarding period The candidate experience doesn't end when a candidate is hired. Make sure to provide new hires with a positive onboarding experience. This can help them feel welcome and valued from day one. A world-class talent management platform is likely to have an onboarding module that automates onboarding and allows the new hire to get the information they need when they need it. Ensure the process is effective and optimized to support the onboarding transition. A positive candidate experience can help your organization attract and retain top talent, improve your reputation, and increase the quality of job applicants. Creating a positive candidate experience should be a top priority for any organization looking to attract and retain top talent. By implementing the steps outlined in this plan, organizations can create a competitive advantage that can help them succeed in today's ever-changing job market. How empathy can improve performance management Three ways to think about the workforce of the future How Digital Workplaces Can Improve Business Results Contact center of the future: Balancing chatbots and humans Let us help you overcome the technical challenges in your organization's recruiting process. Theme Font size Line height ======================

Five cyber strategy considerations for the metaverse

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for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Faraz Ahmad Quinn Banks Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 5 MINS READ Faraz Ahmad Engagement Manager, Risk and Cyber Strategy, Consulting - TCS Quinn Banks Director, Risk and Cyber Strategy, Consulting - TCS You have these already downloaded We have sent you a copy of the report to your email again. In the two years since Meta announced its plans for the metaverse, we've seen many enthusiastic claims about its revolutionary impact on entertainment, business, and social interaction. We've also seen some of the intense early focus of public attention move on to other advancing technologies like generative AI. But, as enterprises put the initial curiosity and excitement around metaverse behind them, they have continued to see the value in developing metaverse concepts, particularly in key business use cases like employee training, onboarding, remote working, and digital twins. It's true the precise meaning of metaverse can still be hard to pin down. First coined by science fiction writer Neal Stephenson in 1992, the term broadly refers to the evolution of the internet into a persistent immersive virtual world that people can inhabit and interact with as easily as the real world. We believe a useful way to think of it is as an ongoing convergence of the physical world with the digital world thanks to a combination of immersive and leading-edge technologies. This includes not only immersive technologies like virtual reality (VR), augmented reality (AR), and mixed reality (MR), but also other related technologies like spatial audio, geolocation services, artificial intelligence (AI), machine learning (ML), blockchain, and quantum computing. As we move into development and implementation of metaverse, the hard work of deciding how these technologies and experiences will function on a technical level is underway. Cybersecurity is a critical component of that process. Enterprises must consider how people will connect, collaborate, work, and do business within metaverse environment in a way that maintains rigorous data security and data privacy. The sooner these questions can be answered, the better. A strong security

foundation will be key to building and maintaining users' trust as they move in and out of the metaverse and the physical world. This will require new cybersecurity models, new policies, and most likely, new regulations, capable of seamlessly functioning in both spaces. For example, today's blueprints for data access, protection, transfer, and recovery will need to be redrawn. New encryption protocols will need to be developed and enhanced. And real-time threat assessments and automated defensive actions will be vital to mitigate the risks of cyber-attacks, among other priorities. Metaverse cyber strategies will need to account for trends and risks in both physical and virtual worlds at the same time — bringing complex geopolitical, social, and even environmental considerations into play.   To this end, we suggest a series of cybersecurity considerations that enterprises will need to start addressing now as they continue to develop their metaverse strategies and experiences. #1 Real-time risk assessment, visibility, and analysis One of the distinctive features of developing metaverse concepts is the amount of new hardware and data involved. This isn't only a question of giving employees new VR and AR headsets, but also managing the myriad other data sources that might feed into metaverse experiences—from in-car displays and Internet of Things (IoT) devices to sensor-equipped machinery and autonomous drones. The vast volumes of data flowing to and from this huge influx of hardware will all need to be configured, updated, analyzed for risk, and secured. It will require a massive integration and cybersecurity program similar to what enterprises had to go through when they had to incorporate employee mobile devices into their networks. As part of this, companies will need to consider protecting transactions and activities with a rapid, real-time 'on-the-go' assessment and analysis of cyber threats. This will be critical in enabling risk and cybersecurity teams to instantly identify and mitigate any cyber-based incidents across a complex metaverse hardware landscape. This capability could also be used to deliver real-time warnings to end users about possible threats to their data and privacy, and the impact their actions in the metaverse might have on other users. However, a delicate balance will need to be struck in order to deliver these real-time alerts without spoiling the immersive experience. #2 Enhanced encryption It goes without saying that all this new data will need to be stored with watertight security. That's even more important given the new types of information that will be collected in the metaverse. This includes not only personal biometric data—facial expressions, eyeball movements, emotions, voice, other physical information —but also data about people's immediate environment, as well as numerous other business-sensitive datasets. Consider, for example, that many VR/AR headsets have external cameras to capture data about the space around the user. The attraction of this kind of data for hackers and bad actors is obvious. However, the sheer volume of data that will need to be transmitted to and from devices in real time will test traditional encryption methods to breaking point. Those methods simply won't be able to encrypt the data efficiently enough to deliver a seamless immersive experience. As such, data security, transfer, access, and recovery blueprints will need to be reimagined. New encryption protocols and methodologies, such as quantum cryptography, will need to be considered. #3 Redefined privacy Storing this data securely is one thing. Using it in the right way is another. The potential for organizations to use the data irresponsibly–even inadvertently–is significant. Imagine employees going through their annual performance

review with their manager remotely through an immersive experience. Their device may pick up any number of signals—facial expressions, eyeball movements, voice sentiment—they might prefer and expect to keep secret. Anyone who's ever secretly rolled their eyes in a meeting will understand the risk here. The key point is that enterprises must be willing to refresh their user privacy protections and ethical guardrails as they develop metaverse experiences. To maintain user trust, they must be clear and transparent about what data they're collecting and how it will—and won't – be used. Over time, we may see a shift towards users taking more ownership of their data and exercising greater influence over how it can be used. In the consumer-facing space, companies may need to consider 'quid pro quo' arrangements, in which users are rewarded with better experiences or similar benefits in return for access to their data.   Ultimately, given the high potential for data misuse, this is likely to be something governments and regulators start to address, possibly even through international agreements. We've already seen movements in this direction in the European Union with GDPR and similar laws in California and New York. However, enterprises shouldn't simply sit on their hands and wait for metaverse cybersecurity regulation to happen. They should look to be active participants in the development of those regulations and policies. And in the meantime, they should consider stringent data privacy and ethical safeguards as a core part of running a responsible and well-respected business. #4 Adaptive security The sheer amount of data to be secured in the metaverse will require companies to consider technological as well as human solutions. Fortunately, rapid advances in AI will offer a host of new opportunities. AI-driven adaptive cybersecurity will be able to analyze and learn from vast amounts of data in real time, identifying patterns, spotting anomalies, and taking immediate action on a scale and with a speed human analysts could never hope to match. Such adaptive safety control systems would monitor data, assets, systems, and transactions, predicting, preventing, and responding to issues in real time. At an individual level, an example might be alerting cybersecurity teams that a user has started behaving unusually—or even shutting down their access automatically. But adaptive security could also operate at the enterprise or even metaverse-wide level to identify broader information risks and cyber threats. These broader risks will become ever more relevant as the metaverse continues to merge physical and digital worlds. The potential for actions in one to influence outcomes in the other will increase dramatically. On the one hand, metaverse experiences will become reliant on real-time data from the real world – weather patterns, user data, social media, and so on. On the other hand, metaverse environments will themselves increasingly affect that real world. Think, for example, of a digital twin of a manufacturing plant providing insights to improve the performance of physical machinery in real time. The point is, metaverse cyber strategies will need to account for trends and risks in both physical and virtual worlds at the same time—bringing complex geopolitical, social, and even environmental considerations into play. #5 Interoperability A core concept of the metaverse is that individuals, assets, purchases, and spaces have a persistent virtual identity, just as their equivalents do in the real world. Users will be able to come and go at any time, pick up where they left off, and switch between different virtual spaces, in a completely consistent and seamless way.   For enterprises building metaverse experiences, this need

for seamless integration has significant implications for interoperability and access management. Put simply, user experience will be severely diminished if employees or customers are required to laboriously log in and out of each different virtual space they want to enter. A good analogy would be a shopping mall that asked customers to verify their identity before entering each store. The negative impact on the user experience is so obvious it hardly needs stating. And yet, to avoid that happening in the metaverse, companies will need to find ways to manage the transitions between different virtual spaces securely. This is not something that any one company can solve on its own. It will need cross-industry standardization and interoperable security protocols, like those agreed for internet payments. Companies will therefore need to come together, forming cross-industry organizations to agree on standards for ensuring transitions within the metaverse maintain watertight security.   User experience in the metaverse will be dramatically different from the way we experience the internet today. But data security threats in these environments will be equally distinct and varied. Therefore, we believe the metaverse calls for a new approach to cybersecurity, following the five considerations outlined above. Now that we've moved past the hype stage, we can start the real work of building productive metaverse experiences that deliver value for customers, for employees, and for businesses. The key is to ensure this next iteration of the internet is secure by design and cyber resilient from day one.
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Making sense of disruptive innovation

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computer interfaces, and cryptocurrencies.   Does the innovation satisfy the same consumer itch? If the answer is no, it will fail to dominate markets until it can replicate, or surpass, the experience of the previous technologies. Consumers purchase products to satisfy specific needs, some of which are utilitarian and some of which are emotional. An innovation must address the same functional and emotional needs or many users will decline to use it. Three examples of innovations that have (so far) struggled to dominate markets because of their inability to address the consumer's full experiential needs: smartwatches, e-readers, and online learning institutions.   Is the innovation free of restrictions imposed by regulators to slow its adoption? If the answer is no, it will fail to dominate markets until the regulations restricting its use are waived. Entities cannot use tools that the government has strictly prohibited. If an innovation is partly or wholly illegal, most users will decline to use it. Three examples of innovations that have (so far) struggled to dominate markets because of regulations restricting their use: aerial drones, gene editing, and self-driving cars. Many innovations succeed in being better than their rivals across two or three dimensions of the four Cs framework. As such, they will be popular among some consumers, but not a majority of consumers, until they can achieve product superiority across all four dimensions. Once that happens, however, watch out. Mass adoption can be swift. For example, consider that peer-to-peer rideshare services such as Uber were cheaper, more convenient, and offered a nicer user experience than taxis. However, regulatory restrictions initially held them back—until one day, they didn't. Once those regulatory restrictions were lifted, peer-to-peer rideshare services took off and there has been no looking back. This path is typical for innovations that have achieved superiority across each of the four Cs. Likewise, solar and wind energy production dominate coal energy production across all four Cs except for cost. This implies that as advancements in photovoltaics and turbines drive down the price of green energy, a breakneck push to transform electricity grids will be underway. Conversely, if coal remains cheaper in certain regions, the polluting fuel will not be entirely abandoned. More disruptive innovations lurk in the wings, waiting for their moment in the sun as soon as specific failings are addressed. Will aerial drones be given the green light from regulators? Will virtual reality headsets become less cumbersome? Will 3D printing become cheaper? If the answer to any of these questions is "yes," executives should be on the lookout for rapid disruption. Regarding all other innovations, the recipe for successful foresight is the same. By identifying an innovation's position within the four Cs framework and determining which failing(s) are holding it back from mass adoption, executives can foresee the technologies that will dominate in the future, transforming whole industries in their wake. Disruptive innovations have defined our modern world. Now, more than ever, they will continue to do so. The only question is which ones? AI in the Workplace: Three Jobs of the Future How AI will guide future M&A deals TCS Innovation Forum: Building a Resilient and Responsible Future TCS Innovation Forum: The need for sustainable innovation Looking to turn purpose into action? Theme Font size Line height
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Industrialized Software-Defined Wide Area Networking (SD-WAN) Services

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Orchestrated acceleration in site engineering to deploy 5G

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sharing, and an app ecosystem), and certainty (higher trust, transparency, and diverse activities). Fluidity: Through the site engineering process, the fluidity of information should be maintained. This is so that the data can be accessed, analyzed, or automated for processing at any stage or time. Obtainability: Deployed sites, which play a crucial role in infrastructure development, should be a part of an open framework. Different applications or utility ecosystems can utilize this openness. For example, using open APIs from site engineering systems for smart city development or green energy initiatives through optimization of energy usage on these sites. Certainty: While maintaining fluidity and openness, the framework must support and sustain a high level of trust and certainty among all the entities. These entities can supply equipment, help construct the site and integrate or run the network. The need for a digitally immune site engineering framework 5G is a significantly advanced technology that offers many promises to users and providers. Due to the need for densification, 5G networks bring many complexities, one of which include deploying small cell sites. An infographic illustrating the various components of the site engineering process. Due to densification, 5G networks deploy various cell sites. These require frequent updates and real-time monitoring to avoid service disruptions. The chart shows how an intelligent data fabric creates integrated visibility for telecom infrastructure service providers, allowing enterprise supervision for site planning, inventory management, site installation and commissioning, compliance, user management, and analytics. The entire deployment lifecycle ensures an integrated view of all these entities. More sites bring higher probability of service interruptions, further adding dependency on the field force and equipment providers. Being a highly digital, virtual, and scalable network, 5G also needs more frequent updates and real-time monitoring, where following elements can mitigate such challenges. Intelligent data fabric The involvement of many entities in the site engineering process brings together multiple databases, data lakes, cloud data stores, apps, and document repositories. An intelligent data fabric can weave the data assets and underlying technologies in a unified way. It also enables automation over data to complete the AI lifecycle. The intelligent data fabric enables data and information management from nominal selection to site operation. It connects traditionally siloed entities like telecom infrastructure service providers, OEMs (original equipment manufacturers), and MSPs (managed service partners) in a single place, offering clear visibility and improved reliability. The site deployment lifecycle ensures an integrated view of all these entities. Decentralized digital twin with a distributed structure Asset acquisition, capitalization, and management take place across the site engineering value chain. A transparent, trusted, and distributed system built on blockchain makes it easy to operate and maintain. A virtual and distributed node for all the entities (operator, tower companies, OEMs, and MSPs) forms a digital twin node connected in real time through a digital thread. This can be decentralized, where decision-making is not limited to a single stakeholder but all. In certain situations, some transactions, like a land contract or property leasing, could be done with the help of a third party outside the blockchain. Once agreed upon and executed, these off-chain transactions are made on-chain. Across the process, the user from the entities transacts through historical data, network planning and design parameters, contracts, financial transactions, and approval workflows. This distributed ledger

becomes a single source of truth and reduces data silos. This decentralized digital twin with a distributed structure analyzes the data to improve the wireless network site engineering process and ensure time-bound deliveries. Several such uses of the digital twin with customer and network data aggregation have been showcased at the TM Forum. Blockchain helps accelerate the digital twin adoption to match the scale of the 5G network. The obtainability of different APIs and digital frameworks from the site engineering process leads to the economic sustainability of smart cities. To simplify site engineering through technological interventions, it is necessary to unlock the full potential of machines used by providing the intent as an outcome. AI will demand essential information from various integrated sources based on the intent. Intent-based orchestration The Internet Engineering Task Force (IETF) clearly defines concepts about intent-based management, service models, and functionalities. Scaling up the site engineering process for network densification needs an automated and flawless integration for site optimization, performance testing, and acceptance before handing it over for operations. A defined intent can help orchestrate such integrations. Based on the concepts defined by the IETF, multiple scripts will run to configure the site per the required technologies and parameters. The orchestrator can perform these in a flash using a pre-defined configuration catalog. This catalog contains all the required information and standard policies to run the intent-based orchestrator, optimizing the use of available resources and running the scripts with no errors. An infographic explaining how intent translator engines work to enable automated inventory, planning, and design database integration. Based on the concepts defined by the internet engineering task force (IETF) for intent-based management, they ensure the output adheres to site optimization requirements and the pre-defined parameters in the configuration catalog. First, an input is logged into the intent translator engine, which works on AI-ML and rule-based models in complete synergy. The intent translator engine then generates real-time output per the parameters required for site integration on the field, leading to reliable network planning and deployment. Here, the intent will be given as an input to an intent translator engine. This has a set of AI-ML and rule-based models working in complete synergy. The engine will provide near-real-time output regarding the parameters and specifications required for site integration on the field. For example, a telco is looking to provide coverage in some area in a specific range. The orchestrator will gather all the required intelligence and suggest the best location to deploy the tower, tower structure, and antenna with directions and parameters for the respective technologies. Reliable network planning and deployment, including site configuration in multi-vendor and multi-technology environments, brings significant tangible and secure benefits. The reduced time and effort required to maintain the network translate into more time for network innovations, which provide real value to the business. As the densification of networks takes prominence, a digital-physical fusion with convergent technologies can speed up the site rollout process. It can also present a better case for governance and transparency. An orchestrated acceleration in site engineering for 5G deployments makes better business sense as it will minimize the deployment time and enable faster realization of many sought-after benefits of 5G. TCS Named a Leader in Application and Digital Services in Life & Annuity Insurance by Everest Group TCS-Tre Scandinavia

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Winning the 5G race with SDN in microwave backhaul

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telcos must face. Applications of 5G technology in niche business areas like self-driving cars, healthcare, and artificial intelligence (AI) are expected to inflate telcos' revenue, but high spectrum charges, fuel costs, and low user charges pose hurdles. To increase profitability and deliver compelling, differentiated customer experience, CSPs must roll out 5G services quickly – the trusted microwave technology can be of immense help here. The limitations and challenges of microwave technology from a telco standpoint can be addressed using a software-defined network (SDN). We discuss how a combination of microwave and SDN technology can help telcos get the maximum return on 5G. Telcos are racing against time to deploy the infrastructure required for smooth 5G services. SDN is an approach to networking that uses software-based controllers or application programming interfaces (APIs) to communicate with underlying hardware infrastructure and direct traffic on a network. SDN is already in advanced usage in modern networking but its use in microwave backhaul is still nascent. However, SDN and microwave can together help address the challenges of spectrum scarcity, cost of spectrum, interference, and compliance. SDN helps telcos reduce the total cost of ownership (TCO) and drive faster 5G network rollout. Ace the 5G game with SDN and microwave backhaul. As leading telecom operators mull over ways to streamline 5G roll-out and reduce TCO, SDN and microwave technology usage offer four compelling benefits. They are: Interference assessment and correction: As per standard practice, the planning team analyses microwave link performance reports and suggests corrective measures to remove interference issues. Link performance remains poor if analysis, suggestion, and implementation are not performed in real time. On the other hand, SDN-enabled networks can analyze interference issues on any microwave link and make intelligent decisions to reduce the same. SDN can perform the below activities in real time: Let us take an example to understand this better. Consider a service affecting interference on 1+0 MW link @64 QAM ,112 MHz, and the airlink capacity of this link as 501MBPS. 112 MHz frequency channel is a combination of two 56MHz frequency channels. SDN will first analyze the channel which is affected by interference. SDN controller will then automatically reduce the channel's bandwidth to 56 MHz and allocate the frequency spot of 56 MHz (the channel not affected by interference) to the link. By doing this, interference will reduce, and with it, the capacity too will decrease to 321 MBPS. SDN will now step up the modulation to increase the link's ability based on its performance. SDN can increase to 2048 QAM to get the desired capacity of 500 MBPS. Figure 1 illustrates this radio data sheet for granular clarity. Figure 1: Illustrative radio data sheet Automated software updates: Microwave original equipment manufacturers (OEMs) regularly release new software patches. Presently, these are run manually in each link through EMS, which is time-consuming. The controller can automate software upgrades by efficiently running software patches on the microwave link based on the utilization of the link and its traffic priority. The controller can route traffic to the best possible redundant microwave path in the eventuality of a failure. Energy saving: Links are usually less utilized during the night or non-peak hours. Network elements (NEs) can be kept in sleep mode during underutilization periods to save energy. Modem and outdoor units are transmitting round the clock. Centralized control can access the link's utilization and close few channels or ODUs based on the current and past utilization patterns. For example, if the 2+2 HSB link has less than 50%

utilization during non-peak hours, then out of eight, four outdoor units can be muted (see Figure 2). This will result in significant energy saving for the telco. Similarly, in a mesh topology, some links can be deactivated entirely for fewer non-peak hours and dynamically re-activated when the demand increases. Figure 2: An example of energy saving with link utilization Adaptative coding and modulation (ACM)-triggered SDN rerouting: In the case of bad weather or rain, modulation of the ACM-enabled microwave link decreases. In such situations, SDN can intelligently route traffic on less utilized and stable redundant paths. For instance, when there is bad weather, the ACM reduces the modulation of the link between sites A and B (see Figure 3). Here, SDN is triggered and a more stable path between locations B and D compensates for the compromised capacity. Figure 3: An example of ACM-triggered SDN rerouting Automating the line-of-sight (LOS) survey will help. A LOS survey is the initial requirement after the desktop survey to establish a microwave link. It requires a physical visit to the site and the collecting of critical information, including type, height, and coordinates of obstruction along the LOS.   This information is then shared with the backend planning team. We believe, a LOS survey app can play a significant role in allocating the survey to the field team, uploading site information (pictures and coordinates), and LOS obstruction with the planning team on a real-time basis. It can also aid site selection for a green field project and reduce rework.   We foresee such an automation to yield a range of benefits such as real-time monitoring of field survey, an increase in throughput and efficiency, up to 25% reduction in manual effort, and significant reduction in rework and mobilization. It will also drive down the cycle time of finalizing field data by up to 30% and result in more than 95% accuracy in network design data and reporting dashboard. Lowering the tower and antenna costs for telcos is imperative. The TCO associated with antennas is a crucial criterion for network designs. For customers who lease tower space, the recurring charge (opex) is calculated on the leased vertical space on the tower based on the antenna size. Thanks to technological advancements, we can now use a single antenna for two different bands. An antenna that supports two traditional frequency bands, for example 6GHz and 11 GHz, in a single standard reflector, with multiple RF ports, is now available. With such an antenna, 6 GHz plus 11 GHz multi-band links can now be implemented as quickly and cost-effectively as a 2+0, 6 GHz link. Also, we can use a single antenna for transmitting traditional frequency bands and E-bands. Lowering the spectrum cost is another focus area for telcos in the race to 5G, as microwave spectrum cost is one of the most prominent TCO component worldwide. And as capacity demands grow, more spectrum is required. By combining microwave and e-band in the same product, like with multiband radio, customers can achieve significant savings on spectrum costs as e-band is available at lower spectrum fees. Exciting times lie ahead for telcos and customers alike, and early adopters of innovative new technologies stand to reap significant rewards. NFV and SDN – The Key to Service Delivery Transformation for CSPs Product Engineering Services to Create NextGen Products / Solutions | TCS Rebuilding Operations Support Systems for the Digital Era Making telecom networks 5G ready: What it takes Want to go beyond traditional boundaries? Theme Font size Line height =====================

AI can ring in new levels of service assurance for telcos

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desired by customers. Meanwhile, modern technologies, network virtualization, and cloudification have exponentially increased the complexity of network and service operations. These complex new network architectures and dynamic service demands are creating new business models that require a complete rethink of the way telcos approach service assurance. This reinvention is necessary to deliver the desired outcomes of quality and experience while adhering to the stringent demands of reliability, scalability, security, and resiliency for networks and services. Technologies such as artificial intelligence (AI) will play a key role in guaranteeing next-generation service assurance. According to TCS AI for Business Study, most companies are optimistic about the potential impact of AI on their business. As many as 72% of them are currently reworking or planning to rework their business strategy or operations to leverage the transformative power of AI. There are multiple drivers and incentives for network transformation and service assurance with AI. A few of the most pressing ones are: Traditional network assurance broadly covers basic and enhanced fault, performance, and service management functions. These functions rely heavily on skilled, high-cost human operators performing manual troubleshooting and network correlation tasks and/or developing specialized engineering and business rules. The operators enable service assurance applications to perform limited automation for assisting manual interventions. AI-led next-gen service assurance will remove or significantly reduce the dependency on human intervention and introduce advanced data-driven highly automated decision support for service assurance. The new system would leverage comprehensive data ingestion from network, infrastructure, and applications while applying machine learning and AI algorithms to achieve service observability that delivers the highest levels of automation, service insights, and business intent-driven operations. It will also enable telcos to develop AIOps capabilities for the modern digital ecosystem, including cloud-native and software-enabled networks. Such networks can deliver broadband, 5G, fiber, and telco cloud services while managing the complexity of assuring existing incumbent networks that supply adjacent or underlay services to the new digital infrastructure. Another business outcome that telcos can hope to realize with next-gen service assurance is reduced operating costs. To illustrate, such transformations have led to some companies achieving 30% or more of total cost of operation (TCO) savings, while enhancing overall customer experience. This, in turn, protects service revenue streams. To develop AI-enabled next-gen service assurance and realize desired expected business outcomes, companies need to: A future-forward service assurance strategy is crucial to gaining a competitive edge with customers. It also empowers operations teams to continually adapt to evolving network technologies and keep up with the changing needs of business. But what should telcos focus on when developing their service assurance evolution roadmap? To ensure they become future-ready organizations with the capabilities to offer great customer experience, network reliability, and quality service levels, they should: Introducing AI technologies into the complex service assurance environment of telcos will require concerted efforts. AIOps, large language models (LLMs), and AI/ML can be used to bridge organizational silos and increase collaboration across IT, engineering, operations, and business groups. Data science and prompt engineering experts can work with diverse stakeholders to identify relevant business and operational AI use cases,

determine the corresponding data available or that must be retrieved from various sources, and then create the corresponding data stores with easily accessible data models. The objective is to select the appropriate algorithms and design effective AI/ML models to derive required business insights that support business and operations decisions. For example, GenAI and LLMs can derive operational insights from unstructured text fields normally captured in historical network and service tickets. Telcos can then augment the data with knowledge captured in network engineering manuals and documented network operations and maintenance procedures. These insights can be used to recommend the appropriate course of action to resolve network problems or trigger automated algorithms to correct service-affecting issues. The creation and continuous enhancement of AIOps and LLMs require disciplined fine-tuning of algorithms for accuracy and performance. This fine-tuning can be carried out using systematic business requirements analysis, development, testing, and deployment in a DevOps continuous integration, continuous development, or continuous testing approach to achieve maximum speed and agility. The interactions among data, algorithms, models, and workflows in the development of AI use cases must be considered carefully in the AIOps and GenAI release management processes to minimize the risks of model corruption that can result in erroneous, diverging, or hallucinatory insights. This disciplined release management will require robust AI model governance and underlying data governance to maximize the business value of AI/ML/GenAI adoption. The rollout of next-gen service assurance across the network and IT ecosystem of a telco must be gradual and evolve progressively. This ensures minimal disruption to business and improves the acceptability of new ways of working across an organization. Organizations need to focus on three key aspects of handling network and service data to transform service assurance and gradually break down operational and tool siloes. These are: Get and store the data: The aim is to reduce dependencies on fragmented network and IT monitoring tools by migrating data collection into a single data ingestion and distribution platform. In addition to ingesting network and service data streams, this enables expanding the use of contextual, environmental, and other information for enhanced network and service state awareness. It also allows for algorithmic interventions near the source of data to limit cloud storage consumption and data transfer costs. An example of this is the suppression of white noise and informational alerts at the source. It is designed to retain technical domain-level autonomy for data while allowing governed data sharing and usage for end-to-end correlation and business insights use cases. A case in point: A leading European telco deploys a master data lake to store all relevant RAN, Core, and transport networks, services, and environmental data (both structured and unstructured), which is then used to enable deep observability and AI-driven analysis of network health and service quality in real time. Simplify access and serve the data: Focus on creating a unified visualization, dashboarding, and data distribution application programming interface layer to make available all data feeds from the cloud and IT infrastructure and incumbent modern OSS and IT tools, as well as any relevant legacy networks and tools. The consumers of the data may be business stakeholders, human operators, or machines and algorithms providing operations and business support functions as well as telco partner systems. Another key activity is the creation of data access policies and a data governance structure to mitigate

data security implications and avoid data privacy violations while supporting data residency requirements. Use AIOps and AI algorithms to interpret the data: Combine service assurance expert-created business logic with AI-discovered rules and develop the corresponding automatic trouble resolution workflows. This will require sunsetting legacy manually driven IT and OSS applications. A greenfield approach is preferred for implementing next-gen AI-based service assurance, where specific high-value and modern services are installed and monitored first to provide quick wins and enable advanced modern services quickly. A secondary and complementary approach leverages existing legacy tools by assessing their business value and determining if their respective product roadmaps can incorporate GenAI and AIOps as a possible upgrade path. The expected outcome of this transformation is to deliver a common and flexible service assurance stack that breaks down operational and data siloes, and lowers overall TCO across networks and IT. AI-enabled next-gen service assurance will help telcos address major shifts in their business ecosystem and operational environments. It will also help them better manage their future networks and services. In summary, AI for telco service assurance will deliver the following outcomes: The OSS transformations discussed in this paper will allow telcos to become truly data-driven organizations with a secure free flow of information to all stakeholders, whether human or machine, while bringing a strong culture of end-to-end service responsibility and customer experience focus. Data Management in 5G Networks for Driving the Networks of the Future Acceleration of Site Engineering for Faster 5G Network Deployments Enable faster 5G rollout with SDN Three UK Partners with TCS to Accelerate 5G Network Rollout Want to go beyond traditional boundaries? Theme Font size Line height =====================

Shape the future with human-first AI

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TCS AI WisdomNext™

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automatic quote generation and real-time inventory information with geo-tagging. A leading insurance provider leveraged the platform to boost productivity and efficiency in application migration and modernization, while a leading bank in the UK used it to develop a smart mortgage assistant for enhanced customer experience. From faster speed to market to higher productivity, unlock the potential of generative AI and gain a competitive edge. Here are some of the key benefits you can achieve with TCS AI WisdomNext: We can help you expand your capabilities and reimagine your business with GenAI. TCS AI for Business Study Key Findings TCS launches an industry-first GenAI aggregation platform: TCS AI WisdomNext™ Realize the promise of GenAI-powered digital workplaces AWS Recognizes TCS with New 'Generative AI Competency' Partner Status Generative AI in Finance: Opening up a Sea of Possibilities TCS' Personalized Conversational AI Solutions on AWS Cloud Want to deliver memorable experiences to your customers? Theme Font size Line height =======================

Unlock the promise of AI responsibly

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/artificial-intelligence/white-paper/responsible-ai-driving-progress-innovation-social-good ----- Services Shape the future with human-first AI Highlights On this page Why responsible AI A framework for responsible AI Applying the framework The way forward About the authors Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Nidhi Srivastava Sandeep Saxena Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we

believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Artificial Intelligence / Whitepaper Nidhi Srivastava Vice President and Global Head of AI.Cloud Offerings, TCS Sandeep Saxena Lead, Responsible AI practice, AI.Cloud, TCS You have these already downloaded We have sent you a copy of the report to your email again. Adopting AI responsibly is the only way to identify and mitigate risks that come with the technology. The future is artificial intelligence (AI). As technology continues to evolve and mature, enterprises must adopt it at scale to stay relevant, compete, and grow. However, AI applications have associated risks. With growing concerns about the possibility of AI generating undesirable outcomes, organizations need to approach the technology with caution. Adopting AI responsibly is the only way to identify and mitigate risks, maintain control over the outcomes, and safely get the most out of AI. To address potential issues and unwanted consequences from AI, organizations must infuse responsible AI practices into their AI and generative AI (GenAI) applications (see figure 1). This will require them to continually monitor and measure the AI applications to ensure they comply with the fundamental aspects of responsibility. Some of the key indicators that organizations can use to ensure responsible AI are: An illustration showing how responsible AI addresses issues such as undesired outcomes and risks of financial loss to enhance trust and reputation. Building AI solutions responsibly to ensure outcomes are safe, secure, fair, and explainable enables enterprises to enhance trust and reputation and mitigate legal and regulatory risks. It also helps them realize the technology's potential to accelerate business transformation and growth. Clearly, responsibility is core to success with AI. A framework based on five core tenets can help deploy AI solutions responsibly. A responsible AI framework built around five core tenets—secure, accountable, fair, transparent, and identity protecting—can help enterprises safely unleash the potential of AI. Figure 2 provides a brief overview of each of these tenets, which can serve as the guiding principles for the development of any AI solution. An illustration showing five core tenets of a responsible AI framework—secure, accountable, fair, transparent, and identity protecting. Breaking down the five core tenets into various sub-tenets and mapping them to specific metrics can help organizations evaluate the extent to which an AI solution complies with the tenets and interventions required to mitigate possible violations of those principles. Such a framework can be applied across the entire AI life cycle to accelerate and de-risk organizations' adoption of AI at enterprise scale. It can serve as a set of controls or guidelines for effective governance, design, assurance, and advisory for AI adoption as detailed below: Responsible AI advisory: Enterprises looking to embark on their AI journey need to have their AI systems and solutions assessed to see if they meet ethical AI standards. The advisory needs to identify high-risk AI applications and provide recommendations and roadmaps for improving them. We believe that three types of responsible AI assessments can be particularly effective: The readiness and maturity assessments can be executed at the enterprise level, while the risk assessment can be conducted at a use-case level. The combined results of the three assessments can be used to generate a responsible AI maturity index, which can serve as a progressive five-point

scale indicating the extent to which an enterprise addresses the five core tenets of responsible AI (see figure 3). Indices like this can help companies pinpoint weaknesses in the aspects of responsibility while deploying AI applications. An illustration of a responsible AI maturity index, which can serve as a progressive five-point scale indicating the extent to which an enterprise addresses the five core tenets of responsible AI. Responsible AI governance: Responsible AI governance encompasses the people, processes, policies, standards, organization, and technologies required to ensure AI is developed and used in a way that's ethical, transparent, accountable, and aligned with human values. The goal should be to: Robust responsible AI frameworks can help organizations prioritize transparency, fairness, and privacy. Such frameworks should be built around three core components: Responsible AI design: Enterprises looking to tap AI opportunities must embrace responsible AI principles whilst designing AI/GenAI-based applications. A responsible AI framework like the one outlined above can help embed the right mitigation steps and interventions throughout the AI life cycle. It can help align AI initiatives with the organization's values and risk appetite, and ensure AI systems adhere to legal, regulatory, and ethical considerations. This will include activities at every step of the AI life cycle—discovery, foundation creation, data preparation, modelling, and building, deploying, and managing the solution (see figure 4). An illustration detailing how the SAFTI framework can help embed the right mitigation steps and interventions at every step of the AI life cycle. It can cover discovery, foundation creation, data preparation, modelling, building, deploying, and managing the AI solution. Responsible AI assurance: Assurance or testing to ensure desired outcomes is one of the key aspects to focus on when implementing responsible AI. It helps ensure that: A responsible AI framework can play a crucial role in validating AI systems for ethical use. Whether it's in assessment or testing, or identification of responsibility gaps and mitigation interventions necessary to ensure the responsibility of AI solutions, they can help enterprises set themselves up for the AI future. As AI becomes more and more entrenched in the business world and our personal lives, ensuring the technology operates responsibly is vital. Responsible AI is a commitment to a future where technology serves humanity safely, with fairness. Global organizations have an opportunity to lead by example. By embedding ethical AI frameworks into their strategic initiatives and focusing on responsibly conceived and deployed solutions and systems, they can ensure that AI works to enhance human capabilities and business value, achieving the right balance between controls and innovation. TCS AI for Business Study Key Findings Ethical Adoption of AI: Surviving and Thriving in the Age of AI TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption Accelerate Enterprise Generative AI Adoption with TCS AI WisdomNext™ Theme Font size Line height
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Generative AI-led customer service transformation

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/artificial-intelligence/white-paper/generative-ai-customer-service-transformation ----- Service Shape the future with human-first AI Highlights On this page Why AI for customer service A structured approach to customer service transformation A phased, "enterprise-wise" AI approach for GenAI-led transformation traversing three stages—assist, augment, transform—can help organizations effectively adopt and deploy AI. An architecture for customer service transformation Case study: Contact center agent Creating stronger customer relationships to drive growth Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Nidhi Srivastava Laxminarayan Venkataraman Bharadwaj Kvk Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Artificial Intelligence / White paper Nidhi Srivastava Vice President and Global Head of AI.Cloud Offerings, TCS Laxminarayan Venkataraman Head, Cross-industry Offerings, AI.Cloud, TCS Bharadwaj Kvk Head–Customer Service and Corporate Functions, Cross-industry Offerings, AI.Cloud, TCS You have these already downloaded We have sent you a copy of the report to your email again. GenAI enables a complete reimagination of customer service across the customer journey. The customer service value chain encompasses the entire customer journey, from a customer's initial awareness of a product or service and consideration of purchase to customer service and, ultimately,

loyalty and advocacy. Key personas—including digital marketing specialists, digital and data analysts, customer service managers, various agents, and service quality managers—play a crucial role in effectively engaging customers at each stage of this value chain (see Figure 1). Equipped with intelligent information for a specific customer scenario—be it personalized marketing or effective service post-sales—every persona can positively impact the customer experience, hence contributing to an enterprise's growth. But today's customer service organizations are struggling with numerous challenges. The most common of these are high labor costs, complex and disconnected customer journeys, high volume of inquiries, expanding number of social media channels for customer inquiries, repetitive questions, reliance on agent-assisted interactions, and difficulty providing personalized support at scale. These very challenges, however, present significant opportunities for intervention. This is where generative AI (GenAI) comes in. With its ability to understand and generate human-like text and interact conversationally, GenAI is enabling a complete reimagination of customer service across the customer journey. The technology promises to transform contact center operations: from reactive service units to proactive, value-adding, and revenue-generating powerhouses. By automating tasks, personalizing customer interactions, and providing predictive insights, GenAI empowers customer service agents to anticipate customer needs, offer tailored solutions for any customer scenario, and even create new revenue streams through targeted upselling and cross-selling opportunities. This shift allows businesses to enhance the customer experience, optimize customer operations, improve efficiency, and unlock new growth potential. An illustration of the customer service value chain, personas, and key GenAI use cases. The customer value chain encompasses every stage of a customer's journey, from awareness to loyalty. Different personas, such as an early adopter or a budget-conscious customer, engage with the enterprise differently. Gen AI can be used to personalize experiences, automate tasks, and predict customer needs, creating a seamless and valuable journey for each persona. GenAI is widely projected to impact 40% of functional spend in customer service across industries, emphasizing its transformative potential. GenAI customer service use cases can be designed specifically for each persona and their role to enhance their effectiveness and help them deliver superior customer experiences. For instance, digital marketing specialists can use AI-powered tools to personalize customer outreach, while digital and data analysts can leverage AI to gain insights into customer churn and behavior patterns. Customer service managers can rely on AI-driven predictive models to optimize resource allocation and service levels. Contact center agents can benefit from AI-powered smart assistants, intelligent call routing, and an enterprise knowledge base to resolve customer issues efficiently. By integrating GenAI use cases across the customer service value chain, businesses can empower their key personas to deliver personalized, efficient, and proactive support, ultimately fostering customer loyalty and driving business growth. As shown in Figure 2, the approach starts with the assist phase, where AI boosts human capability by automating tasks and helping with repetitive tasks. This includes activities such as knowledge search from across multiple information stores and summarization, smart assistance specific to a scenario for agents and customers through natural language interactions, and help creating and sending emails. By using

GenAI for these tasks, businesses can not only automate mundane activities like drafting an email (thereby improving productivity and efficiency) but more importantly, they can deliver rich and sharp contextual information to specific personas that will help make intelligent and information-based decisions for any customer scenario. The next phase is augment, where humans and machines collaborate to achieve better outcomes. This involves using AI for activity optimization, personalized engagement, and predictive recommendations. For example, AI can personalize marketing campaigns and customer experiences, and predict which products customers are most likely to buy, thereby enhancing the potential to cross-sell and upsell. This collaboration between humans and AI gives an assistant to every persona in the value chain, who can also seek recommendations on actions that will best address the customer situation, leading to more efficient and effective decision-making. An illustration of a phased approach to AI-enabled customer service transformation. Covering three stages—assist, augment, transform—the approach can help organizations effectively adopt and deploy AI. In the assist phase, AI boosts human capability by automating tasks and helping with repeated repetitive tasks. In the augment phase, humans and machines collaborate to achieve better outcomes. Finally, in the transform phase, AI elevates human capabilities by personalizing outreach and generating real-time insights and conversation insights—and, in the process, redefines value chains and innovative plays. Finally, in the transform phase, AI elevates human capabilities by personalizing outreach and generating real-time insights and conversation insights—and, in the process, redefines value chains and innovative plays. For example, AI can not only summarize customer reviews and understand the customer's sentiments to personalize customer interactions in real time, but it also can help identify creative ideas for new products and services and new business models based on the insights from customer reviews. This transformation helps businesses stay ahead of competitors and create new customer value. Complementing the three-phase implementation approach is a four-layer architecture for GenAI transformation, which provides a comprehensive framework for integrating AI into customer service operations. As Figure 3 illustrates, the architecture's foundation is robust data management, encompassing structured, unstructured, and external data sources, along with data lakes and warehouses. This data fuels GenAI's foundational large language models (LLMs) and enables advanced analytics. The architecture's strength lies in its purposive and contextual task agents, powered by GenAI. These agents are designed for specific roles within the customer service value chain, such as self-service, quality assurance, marketing, and insights generation. Human oversight and controls ensure ethical and responsible AI implementation, with guardrails and observability mechanisms in place. The task agents are built on the underpinning information stores from the data lakes and data marts including unstructured data such as customer transcripts, and other sources such as customer reviews that will enable rich analytics and insights. These then fuel the relevant work systems that serve as specific assistants to each of the personas in the ecosystem, thereby enabling AI-augmented intelligence that helps drive intelligent, informed decisions for every customer scenario. This layered approach offers several benefits. It allows for a modular and scalable implementation, catering to diverse customer service needs. The focus on purpose-built AI agents ensures efficient and targeted solutions that can be built on data and

information needed for the solution. Moreover, the emphasis on data security, ethical considerations, and human-in-the-loop oversight builds trust and transparency in AI-driven customer service transformations. An illustration of a four-layer AI architecture comprising a core enterprise IT and OT layer; a foundational layer of large language models (LLMs), data warehouses, and data lakes enabling advanced analytics; purposive and contextual task agents powered by GenAI; and AI-augmented work systems. With this architecture as the foundation, companies can develop and implement a wide range of solutions that help transform the customer service function. With this architecture as the foundation, companies can develop and implement a wide range of solutions that help transform the customer service function to achieve critical business outcomes such as: Working in concert, the three-phase approach and four-layer architecture can help companies execute a complete, end-to-end transformation of their contact centers. Here's an example of how GenAI can dramatically change the day in the life of a contact center agent and the value delivered by the agent: Before GenAI: The day starts with a mountain of customer queries. The agent spends precious minutes sifting through CRM data to understand customers' context and history. Each interaction involves manually searching for standard responses or composing emails from scratch. The agent juggles multiple systems, struggling to keep up with the volume, leading to longer handling time, frustrated customers, and agent burnout. There's little time for proactive engagement or personalized service, and the workday challenges often lead to high agent attrition. After GenAI: GenAI enables customer self-service with humanlike interactions, making it seamless for the customer. If the customer wants to engage with a human from the contact center, the agent is greeted with a structured dashboard, where GenAI has already analyzed customer data to provide relevant context, customer sentiment, and suggested actions. Personalized responses are readily available, and emails are automatically generated with professional summaries. The agent gets all the information in a structured format in a single place and doesn't have to hop through multiple systems. This gives the agent time to focus on understanding complex customer needs and providing empathetic support. As the assistant to the agent, GenAI handles the mundane and repetitive tasks, freeing up the agent's time for proactive outreach and building stronger customer relationships, making the agent's job more rewarding—thus leading to stronger customer and agent retention. An illustration of how GenAI can change the day in the life of a contact center agent. Through customer contextual awareness and conversation insights and tools such as smart assist, agent assist, email assist, GenAI can dramatically boost agent productivity, allow personalization, and drive customer satisfaction. Today's business landscape is undergoing a dramatic transformation with heightened customer expectations, fierce competition, and relentless technological advancements. Customers demand personalized, efficient, and always-available service experiences, and expect to be served through social media channels of their choice, pushing traditional customer service models to their limits. This dynamic environment, further intensified by labor shortages and skill gaps, requires companies to completely reimagine their customer service function and contact center operations. Generative AI is a powerful tool to help drive such transformation, allowing organizations to deliver personalized experiences and streamlined interactions, break down silos between

channels to provide seamless and consistent service, and automate a wide range of customer service activities. Companies can create and deliver superior customer experiences that foster strong, long-term customer relationships, provide competitive differentiation, and drive stronger revenue growth in a challenging and evolving business environment. Customer Experience Transformation with TCS CX Transformer Reimagining Digital Customer Experience in Financial Services Persuasive Chatbots in Insurance for Enhanced Customer Engagement Cloud-based Contact Center Solution for AI-Powered CX Collab Space Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================

Win customers for life: GenAI for smarter sales and marketing

----- Arcticle source ----- https://www.tcs.com/what-we-do/services/artificial-intelligence/white-paper/generative-ai-smart-sales-marketing ----- Service Shape the future with human-first AI Highlights On this page Why AI for sales and marketing A structured approach to sales and marketing transformation An architecture for sales and marketing AI transformation Case study: Sales and marketing content generation Using AI to keep pace with the market Transformation starts here Find out more TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. TCS is here to make a difference through technology. We're in it for good, driving positive change for the benefit of all. Extraordinary expertise leads to remarkable results. Want to be a global change-maker? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Nidhi Srivastava Laxminarayan Venkataraman Bharadwaj Kvk Related reading Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a

catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Artificial Intelligence / White paper Nidhi Srivastava Vice President and Global Head of AI.Cloud Offerings, TCS Laxminarayan Venkataraman Head, Cross-industry Offerings, AI.Cloud, TCS Bharadwaj Kvk Head–Customer Service and Corporate Functions, Cross-industry Offerings, AI.Cloud, TCS You have these already downloaded We have sent you a copy of the report to your email again. The sales and marketing function faces numerous challenges, as customer demands evolve and new channels continue to emerge and mature. In the current landscape, companies must be adept at providing hyper-personalized content, accommodating dynamic user journeys, automating lead generation, converting sales without the help of sales representatives, effectively using influencer marketing, taking advantage of digital video and audio, and optimizing the use of search engines. At the same time, they must continually focus on engaging customers and enhancing their experience across the end-to-end customer journey—from initial awareness of a product or service and consideration to purchase, sale, post-sales service, and customer advocacy—keeping the customer front and center in the process. Generative AI (GenAI) can play a vital role in helping companies understand and actively address these challenges to cultivate long-term customers and achieve sustainable growth. The technology can serve as an intelligent assistant to every persona across the customer journey, enabling use cases that enhance the quality and speed of customer engagement at critical customer touchpoints. For example, digital marketing specialists can use GenAI to plan and execute more effective marketing campaigns, while content creators can leverage GenAI to create and distribute more engaging content. In fact, GenAI is poised to transform how every sales and marketing role operates and the value each role delivers. Let's, for instance, consider the technology's impact on one role: the frontline sales representatives (sales reps) responsible for online and physical stores. GenAI can provide assistance and insights, automate currently manual and tedious activities, and empower reps with the information needed to more effectively engage with and convert customers. An enterprise-wise approach to GenAI-led transformation covering three phases—assist, augment, and transform—can help with seamless adoption and make the technology more effective for organizations. The approach starts with the assist phase, where GenAI is used to boost human capability. For example, it can execute a knowledge search across many different data sources to help customers and agents in their daily activities. The GenAI capabilities used can include the following: The next phase is augment, where humans and machines collaborate to achieve better outcomes. In sales and marketing, this collaboration focuses on two key areas: For example, GenAI can be used to provide recommendations to improve search engine rankings and can serve as a customer lifetime value advisor by analyzing customer data and producing recommended actions to maximize long-term value for customers. Finally, in the transform phase, AI leverages its inherent creative abilities to elevate human capabilities, helping reimagine value chains and processes and develop innovative solutions. For example, by analyzing customer review comments, GenAI can suggest product features that will not only help improve current customer satisfaction levels but also help with new product discovery to improve sales and revenue. An illustration of a phased approach to AI-enabled sales and marketing transformation. Covering three stages—

assist, augment, transform—the approach can help organizations effectively use AI for sales and marketing transformation. In the assist phase, AI boosts human capability. For example, executing a knowledge search across many different data sources to help customers and agents in their daily activities. In the augment phase, humans and machines collaborate to achieve better outcomes, focusing on activity optimization and experience play. Finally, in the transform phase, AI elevates human capabilities, helping reimagine value chains and processes and develop innovative solutions. A valuable complement to the three-phase AI implementation approach is a four-layer architecture for GenAI transformation. As illustrated in Figure 2, this architecture provides a comprehensive framework for integrating AI into sales and marketing. The foundation lies in robust data management—built on top of core enterprise information and operations technology systems—that encompasses structured, unstructured, and external data sources, along with data lakes and warehouses. This data fuels the foundational large language models (LLMs), including those for text, images, and video, and enables advanced analytics. An illustration of a four-layer AI architecture comprising a core enterprise IT and OT layer; a foundational layer of large language models (LLMs), data warehouses, and data lakes enabling advanced analytics; purposive and contextual task agents powered by GenAI; and AI-augmented work systems. With this architecture as the foundation, companies can develop and implement a wide range of solutions that help transform the sales and marketing function. The architecture's strength lies in its purposive and contextual GenAI-powered task agents, which are built on the underpinning information stores from the data lakes and data marts. Human oversight and controls ensure ethical and responsible AI implementation, with guardrails and observability mechanisms in place. These agents serve as specific assistants to each of the personas in the ecosystem—such as consumer review insights board, next-best actions sales advisor, and assistants for consumers, agents, and data analysts—thereby enabling AI-augmented work systems that help drive intelligent, informed decisions for every customer scenario. This four-layer architecture offers a robust solution for building complex GenAI applications, providing a modular framework that enhances maintainability and efficiency and allows developers to fully leverage GenAI's power. The architecture delivers three key benefits: With this architecture as the foundation, companies can deploy GenAI to a wide range of use cases, helping transform the sales and marketing function to deliver critical business outcomes. Use cases can fall into three broad categories: Intelligent sales assistance, intelligent marketing assistance, and sales and marketing analytics and insights. 1. Intelligent marketing assistance: This predominantly focuses on assisting, augmenting, and enhancing the quality, productivity, and speed of marketing content creators. It includes: Product catalog assist Product content assist SEO content advisor 2. Intelligent sales assistance: This primarily focuses on enabling the sales representative (online or in-store) with information and recommendations that will facilitate an effective sale and create value for the customer and the business. It includes: Next best actions sales advisor Consumer and agent assist Customer lifetime value advisor 3. Sales and marketing analytics and insights: Companies can use AI to tailor analytics and insights to different perspectives. For example, AI can synthesize customer review comments and feedback for each persona in the ecosystem, interpreting reviews

consistently across the value chain and providing competition analysis to help not just win customers, but also retain them for life. Use cases include: Consumer review insights Enterprise data insights Legal contracts advisor Agent performance advisor Sales and marketing predictive analytics One example of how AI can improve sales and marketing is that of a global manufacturer, which deployed AI to help streamline content generation. Before GenAI: Employees across various departments manually managed tasks, such as generating content, rephrasing content, translating languages , correcting spelling and grammar, summarizing documents, and analyzing data. After GenAI: The company deploys an enterprise chatbot solution leveraging Google's PaLM 2 chat-bison model to enhance employee productivity. For example, via natural language queries, employees can interact with the chatbot and receive relevant and informative responses from the foundation model. The chatbot maintains the context of ongoing conversations, ensuring coherent and meaningful interactions. The sales and marketing landscape is constantly evolving, making it difficult for businesses to keep pace with the changing market landscape. It's especially challenging given the significant influence of factors external to the enterprise—primarily, the market and all the dimensions that shape it. GenAI is a powerful tool that can help businesses navigate these complexities to achieve sustainable growth. The technology is poised to revolutionize sales and marketing by automating tasks, personalizing customer experiences, and providing data-driven insights for decision making among sales agents, marketing content generators, and service agents who can tailor content and interactions for each individual customer or prospect. This will boost engagement, sales, and long-term loyalty that drives sustainable revenue growth. Companies should act now to lead with AI. TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption Generative AI: Powering Next-generation Manufacturing Accelerate Enterprise Generative AI Adoption with TCS AI WisdomNext™ Strategic Marketing Services for Banks & Financial Institutions | TCS Forge lasting connections between your brand and customers by humanizing technology. Theme Font size Line height =====================