Agile development at ground zero

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sprint: One user story should be ideally delivered within a sprint. But implementation timelines for some user stories can stretch beyond a sprint. This adversely impacts delivery timelines, especially if the user story is a critical one. This commonly occurs due to inaccurate estimation of the efforts. Insufficient and unused acceptance criteria: Acceptance criteria is a critical component for a feature or a user story which drives the test cases and therefore, the scope and quality. Inaccurate or incomplete acceptance criteria for a user story or a feature will result in insufficient test cases and therefore, lead to poor delivery quality. This happens due to incomplete feature analysis and identifying acceptance criteria just for the sake of process compliance. Sprint effort estimation: When the sprint effort estimates are too optimistic, unplanned absence of members in a team affects the sprint deliveries adversely. This sometimes causes several critical user stories to be descoped from the sprint and affects the deliverable quality. Ad-hoc requests: Projects with one or more active customers invariably get ad-hoc support requests despite meticulous planning. Most of the time, these requests are time bound and must be addressed quickly. Developers capable of addressing such requests are often those actively contributing to a sprint delivery. This results in sprint timeline slippage. Quality assurance: In any enterprise project, delivery besides functionality, security, performance, and code-quality assurance is also of paramount importance. Any unforeseen gaps identified during the functional and non-functional requirement testing must be addressed with the utmost priority, as they have definite impact on the planned development that is parallelly happening. This adversely impacts the sprint timelines. If proper time and effort are not allocated for identifying and fixing functional and non-functional issues, deadline-based deliveries could happen with known limitations which is not a healthy agile practice. Infrastructure issues: Sprint development requires all developer workstations to be fully equipped with the required infrastructure. Each developer in an agile team must ensure that the required resources are ready before the sprint begins. Any delays in procuring the required infrastructure will be a roadblock to that story completion. Parallel sprints: It is not uncommon for development teams to execute one or more parallel sprints to cater to the needs of critical customers. When the same team members participate in parallel sprints, there is a possibility of poor quality along with developer burnouts. Retrospective meetings: Development teams who newly adopt the agile methodology tend to slowly stop conducting proper sprint planning and retrospective meetings regularly. Sometimes, teams do not record retrospective points. Due to this, the expected benefits of agile methodology cannot be reaped and there is a slim chance for iterative improvements which is the core tenet of agile. As agile adoption enables quicker development and delivers tested working software, it is imperative that every team adopts it and practices it. Development teams must be wary of the above aspects while executing agile projects. In our next blogpost in this series, we will bring forward a set of practices that can help mitigate the above challenges. For further details please write to us at mastercraft.sales@tcs.com The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my

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6 steps to migrate your Microsoft workloads to the cloud

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the cloud before legacy environments outlive their usefulness is a prudent step. Migrating workloads to the cloud allows easier integration with other cloud-native services and helps organizations deliver new applications rapidly, which results in better customer experiences. In the past, the cost of procuring and maintaining infrastructure to run Microsoft workloads was an operational necessity. Hyperscalers such as AWS now offer a broad set of global compute, database, application, and deployment services that use Microsoft technologies; they have also designed a lot of native components to work with Microsoft technologies. Open windows of opportunity by leveraging the power of hyperscalers. Here's what you stand to gain: Accelerated migration and deployment: Migrating existing Microsoft workloads to the cloud can be tricky. However, platforms and accelerators can allow for a rapid, accurate, and secure migration.   Scalability and flexibility: A pay-as-you-go pricing model helps reduce fixed costs. It also offers an option to scale up and down based on usage. Improved security posture: Data associated with Microsoft applications is natively protected with end-to-end encryption. Flexible connectivity options of point-to-point or virtual private cloud add multiple layers of security, including dedicated physical connectivity, logical isolation, security groups, and access control lists. "Technical debt" reduction: Migrating Microsoft workloads to the cloud helps future-proof the organization as it frees them from legacy technologies that have a limited shelf life and are difficult to maintain. Continuous optimization: Ongoing performance improvement of Microsoft applications becomes simpler once they have been migrated to the cloud. Mantra for Microsoft workload migration success So how do get you started? Here are six steps we recommend: 1) Analyze the details of existing Microsoft workloads running in your environment and build an informed business case about which workloads should be migrated. 2) Define and execute the migration of workloads. Platforms such as TCS' Cloud Migration Factory enable faster migration with an assembly-line approach. 3) Operate and govern the workloads by addressing operational aspects such as monitoring, incident, change, release, configuration, problem management, and cost management. Platforms such as TCS' Cloud Exponence can help manage such environments across geographies in either shared or dedicated service models. 4) Leverage cloud-native options such as AWS cloud-native management tools to capitalize on the scale, flexibility, and resilience of applications running on cloud. For instance, Amazon EC2 Run helps automate administrative tasks across a large fleet of instances. Likewise, the AWS RDS SQL server can help reduce overhead cost for managing Microsoft applications. 5) Deploy required versions of Microsoft releases. A comprehensive set of options available with cloud providers like AWS enables quick provisioning and supports migration of workloads to all the supported releases. 6) Actively explore options like bring your own license (BYOL). With such options, organizations can efficiently make use of their existing Microsoft licenses or purchase new Microsoft software licenses including Windows Server and SQL Server directly through cloud providers like AWS. Organizations looking to migrate their Microsoft workloads to the cloud should consider these six key recommendations to ensure a seamless migration. While cost is a key consideration, data security, business agility, and IT simplification are important aspects as well. Organizations should also understand that successful technological change is possible only when the impact on people and processes are addressed appropriately. The Role

of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Virtual store: Beyond a short-lived gimmick

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sales strategies such as virtual stores that ease selling and buying experiences. A virtual store, in simple terms, is a 3D experience powered by augmented reality (AR) and virtual reality (VR) technologies that allows customers to interact with product in virtual spaces or personalized surroundings. Most organizations, struggle to see a return on investment. Although virtual stores begin with much fanfare, the charm soon wanes and virtual stores are as seen decorative ornaments in the channel strategy's living room. To address these challenges and generate sustained value, an organization's channel strategy must take into consideration the points outlined below which, can lead to a better customer experience and more sales. A table outlining six virtual store considerations for an organization's channel strategy to drive better customer experiences. These considerations are faster eCommerce integration for a closed loop experience, dynamic content updates sharing real-time updated product information, a rich set of features with HD quality using 3D models, measurement and analysis of what customers are looking for, and the speed of easy user interactions. 4. Quality:The Image quality of 3D models is an essential aspect of convincing a user to explore products in virtual or augmented personalized spaces. There must be a focus on high-definition 3D imaging software that generates images with 360-degree rotations, zooming options, brightness control, and motion tracking—all accessible through web browsers, and working seamlessly on mobile devices. 5. Measurement and analytics: The click stream of user interactions with a virtual store creates a lot of data. A mechanism must continuously report on insights that enable the marketing teams and engineering team(s) to design campaigns and experiences based on customer behaviors. Such continuous improvements will help in allowing wider adoption of the virtual store. 6. Speed: Slow product interaction that lags and buffers will have a negative impact on the experience and reduce the probability of completing a sale. Speed of user interaction should be at the center of design to enable seamless experiences on all devices. In conclusion, virtual stores fit into both the B2C and B2B worlds, helping customers and prospects in their buying journeys by enabling a better understanding of the product through interaction and personalization. Thus, it is crucial for businesses to consider the aforementioned factors as a part of their virtual store strategy to maximize benefits and provide an incredible user experience. TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Role of AI in HRMS Industry Improving content accessibility for people with disabilities Achieving Stronger Brand Equity through Customer Centricity and AI-driven Marketing 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. =====================

Retelling the future of retail with technology-driven intelligence

Services Enabling Enterprise Agility & Resilience with a Robust Cloud Strategy Grow, Innovate, and Transform with TCS and AWS Cloud On this page Retail goes digital Intelligent IoT and real-time data drive accelerated decisions Microservices and serverless architecture on cloud enhance agility AI-ML transform customer engagement 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. Aditya Jaigopal Nagaraj Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Aditya Jaigopal Nagaraj Lead, Strategy and Business Operations, AWS business unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. Multiple trends have shaped the retail space over the last two years. While online selling was the only option during the COVID-19 lockdown days, even the digital native e-tailers saw their infrastructure stretched to meet their own standards of timely delivery. Erratic, unpredictable supply chains, last-mile delivery issues, inventory imbalances, desperate consumers, and a hoarding mindset have caused turmoil in the retail industry. Retailers have risen to the occasion with on-the-go innovations ranging from AR-VR options for remote shopping, autonomous in-store assistants, appointment shopping, contactless checkout or curbside pickup, small-scale pop-up or fulfillment stores for buy-online-

pickup-in-store (BOPIS) customers, to voice-enabled smart home assistants and digital wallets. Digital experiences have matured as well, with omnichannel connects, personalized promotions, seamless communication for pick-up requests, product bundling options, pickup facilitation and customer verification. With such a wide range of innovative trends and experiences becoming necessary for survival, retailers resorted to technology. This accelerated digital transformation, in turn, created quite a few trends of its own. Let's examine the technologies that are enabling this digital transformation for retailers across existing legacy technologies. The connected and predictive monitoring capabilities of IoT can be leveraged by retailers for a single pane view of their complete ecosystem of suppliers, warehouses and customers. IoT can connect thousands of devices from edge to cloud across a retailer's supply chain, warehouse and customer ecosystem. The intelligent and predictive monitoring power of AI-integrated IoT and edge can help to predict, monitor and analyze data from these devices to understand the health of the supply chain, manage inventory prudently, and identify location, footfall and engagement of customers. Well-governed data lakes on cloud can store all these device data at scale and securely through advanced threat intelligence and IT-OT cyber defense capabilities. Such a unified and complete view of their entire ecosystem can enable retailers to glean real-time insights and provide better predictability for accelerated decisions and business opportunities. As the retail industry races against time for technology modernization through cloud, bulky legacy monoliths hamper their pace. Microservices for independent processes can significantly reduce the technical debt of a retailer in the long run, though initially it may go up as new development cost. Their modularity enables autonomous function, scale, speed and the choice of best-fit tool for specific needs. With devops and agile way of realizing outcomes, experiment-fueled innovation has become viable, enabling faster time to market for new offerings and features. Similarly, a serverless architecture with automatic scaling and built-in availability enable direct build of applications as against configuration. It can therefore help retailers respond to change faster through rapid application prototyping and development driving business growth and transformation. The insights gathered from IoT and AI-ML solutions can work toward accurate targeting, hyperpersonalized promotions, offers and recommendations resulting in better conversions, customer engagement and loyalty for retailers. Buying behavior forecasting, smart stores, supply chain optimization, contact center modernization, computer vision for goods and service personnel optimization and check out are some of the myriad ways in which AI-ML can transform end-customer experience. Retailers can benefit from the combinatorial power of these technologies from AWS given their rich cloud-native lineage Over the last decade, TCS and AWS have been partners in helping retail giants firmly secure a growth and transformation trajectory enabled by cloud. Know more about our retail solutions on AWS 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 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

5G in life sciences: Beyond connectivity

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cities. 5G technology will significantly impact the life sciences industry as the focus now shifts to patient-centricity and evidence-based healthcare outcomes. As industries embrace emerging technologies, we witness why a private 5G network is pivotal to enabling emergent tech success. Technologies such as Extended Reality (XR) and the metaverse, quantum computing, and robotics depend on the benefit of connectivity. They also need some of the granular capabilities of 5G to deliver value and experience, to both consumers and enterprises. For life sciences companies, the 5G network and its capabilities of reliability, ultra-high speed, and low latency service will open new avenues for robots and collaborative bots. It will be challenging to execute discreet automation use cases, especially, in a man-machine environment without 5G. 5G is compelling to technologists, futurists, and enterprise strategy planners.   Private 5G will unlock a new generation of industry use cases, from digital surgery and precision medicine to autonomous warehouses and factories. The four pillars upon which any 5G use case rests include the following: 5G is deterministic, which will help meet guaranteed service quality indicators that would be essential to realize outcomes promised by use cases such as precision medicine. There are hardly a few technologies that afford determinism. For example, supervisory control and data acquisition (SCADA) is a deterministic network but sacrifices speed and ability to do more in terms of use case scope and functionality.   5G is elastic, just like cloud technology, a critical determinant for the success of use cases like digital surgery where surgery applications dynamically orchestrate the network capacity and the characteristic it needs without any impact on the end outcomes. 5G is programmable and allows life sciences industries to build applications, like a robotic surgical arm, to directly invoke and control network using APIs. 5G will have a transformative impact on the life sciences industry. It equips companies with a whole lot of new capabilities, such as: The next step is to build use cases and evaluate 5G capabilities in the life sciences industry. Unlike the past era of connectivity technologies, 5G with an edge, interoperability offers enterprises the flexibility to create tailor-made connectivity architecture suitable for business needs. Life sciences industries need to evaluate 5G capabilities and the connectivity strategy in the context of industry capabilities and patient-centric outcomes they seek to deliver. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 prescription for the digital healthcare ecosystem

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to be integrated. As telehealth integrates with mainstream, popularity of wearables – and using vital data from these gadgets to remotely monitor patient health – will pick up momentum as well. E-pharmacies and on-demand diagnostics have emerged as key players in the healthcare ecosystem. With the desperate need for vaccines, rapid, decentralized and patient-centric clinical trials are a reality today. These trends have been made possible largely thanks to the sophisticated digital technologies such as cloud, data and analytics, and cognitive computing. Internet of things Digital transformation of the drug and medical equipment supply chain leveraging IoT and AI-ML has improved efficiency of last mile delivery. It has contributed significantly to the availability of vaccines. IoT also plays a key role in enabling seamless sharing and synchronization of data generated by the wearables and other healthcare equipment. Cognitive computing Real-time and highly scalable predictive models form the basis of cognitive computing in the life science industry. Cognitive systems can hasten scientific discoveries, transform clinical trials and improve execution and engagement for better care. From aiding drug discovery to personalizing medication, ML can play a significant role in the pharmaceutical segment as well. Data, analytics, and AI Data, analytics, and AI are playing a crucial role in translational bioinformatics. Translational bioinformatics integrates molecular data including DNA and RNA sequences, protein and metabolite content with clinical data such as symptoms, diagnostic test data and reports. This has a critical role in studying and predicting emerging variants of pathogens and combating them with suitable drugs.   Cloud enables digitalization of the healthcare ecosystem Legacy and on-premise infrastructure struggle to meet the massive computing needs and technology demands of the burgeoning healthcare ecosystem. Cloud brings in the necessary performance power and robust security and privacy controls required to operate in this highly regulated healthcare industry. Through APIs, cloud facilitates data interoperability and ecosystem wide collaboration, which is of utmost importance now as global healthcare ecosystems need to collaborate more and more to fight the current pandemic as well as gear up to face similar situations in the future. Going forward technology emancipation across the healthcare ecosystem will bring about the much sought-after patient-centric accessibility, affordability and sustainability. Organizations stand to gain a faster pace of innovation, harness data potential and personalize the healthcare journey of customers through the TCS life science and healthcare solutions offered on AWS cloud. AWS has emerged as the trusted technology partner for global players in the healthcare and life sciences industry. As one of the most mature and reliable cloud platforms, AWS provides enterprises the necessary security and privacy guardrails to operate in these highly regulated industries. Enterprises gain an opportunity to modernize every aspect of the pharma value chain, with solutions to help enterprises swiftly develop, test, manufacture, and monetize products and services. 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

AI in Clinical trials – A much-needed reboot

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entire process involves human interference. Consequently, artificial Intelligence (AI) and other new-age technologies have been mooted as impactful and effective solutions to cut through the challenges and shrink the long trial timelines. Pharmaceutical organizations are gradually adopting AI in their entire clinical R&D processes. Of late, the industry has witnessed many organizations collaborating with technology providers to leverage AI/ML and other advanced technologies to decrease the costs associated with clinical trials and improve decision-making in drug design and manufacturing. In clinical trials, AI has immense potential to improve trial efficiency and save time and cost by implementing it in: AI can be used to identify and recruit the right patients for a clinical trial in terms of ethnicity, disease type, and genetic factors. In a traditional clinical trial cycle, patient recruitment can take anywhere between weeks to months. Usually, patients are randomly enrolled by a health system or provider, and often, there's no guarantee that one gets the best match for their studies. Moreover, the waiting time to receive a match itself is pretty stretched. AI can reduce this time to a matter of days by using data-driven approaches for patient recruitment and enrollment. Using various machine-run algorithms that administer a patient's symptoms, past medical history, convenience, and provider capacity, an AI platform can come up with the best patient match through a process called predictive modeling. This is also achieved by running the machine through sets of data from various electronic health records (EHRs) and provider data sets. The AI application analyzes structured data such as the international classification of diseases (ICD) codes and unstructured data such as prescriptions, diagnostic reports, and other medical data that is difficult to search manually. The application subsequently leverages processes that convert unstructured data into structured ones in a rapid manner, for example, a patient graphic that includes all the information needed to match complex trial parameters. Improper site identification often results in poor patient recruitment. Implementing the inclusion and exclusion criteria of a study using machine learning by running through the Emergency Health Records (EHRs) helps the investigator to assess the capacity of a site and provide an accurate number of patients for the study. This, consequently, decreases situations of false availability of patients on the site. The direct benefit and impact lie in the reduction of expenses involved during the early phase of trials and meeting stringent deadlines. AI-enabled wearables and medical devices send notifications and reminders when patients deviate from their dosing schedules or trial protocols. Biometric data can be transmitted to providers who, in turn, access the information through clinical decision support systems and view the patient status in real time. AI-enabled machines can provide alerts by dynamically adapting questions based on patient responses. Effectively, AI in RPM supplements the early detection of patient behavioral traits, adverse events, and interventions. AI and data analytics solutions can help in identifying novel biomarkers precisely. This, in turn, helps various stakeholders like pharma, biotech, and contract research organizations (CROs) in gaining in-depth insights into the prediction of biomarker response in a disease model or along pathways. AI has immense potential to mitigate safety issues that arise due to data entry errors or missing data points. It not only helps in the automatic analysis of numerous datasets and directs clean data to the trial master file but also plays a key role in detecting diagnostic errors or out-of-range lab results. AI, though in

its infancy at present, has the potential to become indispensable for clinical trials in the long run. Ultimately, the rapid adoption of AI will help in better patient profiling in a short time and accelerating the patient recruitment process. It can help bring novel, breakthrough drugs to patients while reducing costs and ensuring quality. Eventually, AI envisages bringing life-saving drugs faster to patients in need. The direct benefit and impact of AI lies in the reduction of expenses involved during the early phase of trials and in meeting stringent deadlines. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Measuring grid resilience: Managing disruptive events in utilities

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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. Anupam Chakraborty Industry Advisor and Domain Consultant You have these already downloaded We have sent you a copy of the report to your email again. On August 9, 2019, during rush hour, London and large parts of England and Wales faced a massive power outage that crippled the entire country. In February 2021, as Texas battled record-low temperatures and snow and ice rendered the highways impassable, its electric grid operator lost control of the power supply. In the wake of a blackout that lasted for days, senior state legislators requested probes, and citizens demanded accountability from the government. Closer home, February 2022 saw Mumbai dealing with a significant power outage that affected the city's central, western, and southern portions, leaving the financial capital without its primary lifeline—the local rail services. In this context of burgeoning cities and increased demands, the utility sector must develop metrics that can monitor, evaluate, and execute corrective actions during disruptive events and fallouts. The utility sector has evolved globally. Technological upgrades and new user requirements have led to major developments in the utility sector (transmission and distribution). Even as the industry strives to maximize customer satisfaction, regulators are introducing stringent measures to enhance efficiency. Key metrics that are used to evaluate performance include: Availability – The demand vs. supply gap Quality – Adherence to regulatory voltage levels and frequency, harmonics, system stability, and so on Reliability – SAIDI, SAIFI, and CAIDI, with the intent to determine the number of interruptions and their duration, as well as the total number of end users affected Flexibility – Time to respond and cater to sudden changes in power requirements Affordability – Price per unit for end users While these metrics are critical, they fail to identify the inherent capability of the grid to effectively cater to consumers in the context of a disruptive event.   Resilience encompasses both quantitative and qualitative metrics. The Electric Power Research Institute (EPRI) defines resilience as the ability to reduce the magnitude and duration of disruptive events through three aspects—prevention, recovery, and survivability. Thus, resilience encompasses both quantitative and qualitative metrics. Quantitative metrics include availability, reliability, and power quality, while qualitative ones could include factors like the utility's ability to withstand or prevent the effect of disruptive events. Grid resilience or resiliency goes hand in hand with the grid modernization drive that utilities had to undertake against the backdrop of aging infrastructure, lack of real-time centralized control, and the exponential increase of connecting renewables to the system. A utility is resilient if it continues to serve its consumers despite an untoward event. This depends on the utility's ability to withstand disruption and not merely its ability to recover quickly from failure. We can aim to measure the system or asset performance under multiple heads, including: Headroom and condition of the assets while sustaining or resisting failure Ability to thwart a physical or cyber attack Time to restore

100% supply after an event Responsiveness while catering to sudden supply or demand changes Ability to resolve congestions without interruption Ease of absorption of distributed energy resources (DERs) in the system   Thus, quite distinctively, we see three stages of grid resilience: We can observe and experience the concession and retrieval phases since they are most obviously manifested. By monitoring the time of the outage as well as the time taken for restoration, we will get a discrete idea of the grid's resilience (illustrated in the resilience trapezoid in Figure 1).   A graph representing the three stages of grid resilience, emphasizes how the evasion phase, the confrontation phase, and the concession and retrieval phase offer a valid measure for gauging grid resilience. It is feasible to monitor the confrontation phase. In addition, operations can also be automated by programming them against certain event thresholds with advanced distribution management. However determining the degree of resistance provided by remedial measures entails many dependent and independent elements, including manual decision-making. What remains a mystery is the evasion phase and its scope in terms of time and capacity. That is because field assets often suffer uneven non-linear deteriorations, further compounded by external influences. Consequently, the amount of withstanding or evasion will be a real-time conflation of performance metrics, asset conditions, and operational permutations. Combining phases A, B, and C, gives us a valid measure for gauging grid resilience. As we advance, thinking beyond grid performance and leveraging stakeholder collaboration will be essential to minimize an event's severity and safeguard our world. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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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Data sharing is key to effective public governance

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personalized medicine and has enabled several scientific discoveries that improve human health. The Intergovernmental Agreement on Data Sharing which came into effect in July 2021 in Australia mandates government agencies to share public sector data by default. A step in the right direction, it highlights the need for public sector agencies to share data for more effective and fruitful collaborate. While the principle has been established, it remains to be seen how the policy is implemented. Government agencies will have to periodically assess the effectiveness and efficiency of the national data sharing program by measuring the outcomes against objectives and ascertaining the improvement in government services and citizen experience. This will help determine the amendments to such agreements. The EU's aim is to become a role model for a data-driven society, to create a single market for data and to facilitate common European data spaces. However, looking at the global market for data sharing and applications, Europe is yet to position itself as a global player in the field. Sharing data isn't enough; sharing the right data makes all the difference. The key areas where data sharing comes into focus include family, domestic and sexual violence, child abuse, health, natural hazards and emergency management, road safety, and so on. With the rapid adoption of artificial intelligence (AI) and machine learning(ML), the importance of data sharing is underscored, even in traditionally less data-intensive fields such as energy resources consumption, agriculture, manufacturing, and construction. Government agencies can determine local needs and updated these datasets. Some of the data elements from health and crime are already being recorded and shared globally, however the overall usage is still low. The latest annual report from the Australian Digital Health Agency shows that just 2.69 million of the 23 million people registered for a My Health Record accessed it in 2020-21. And this was largely driven by people accessing their COVID-19 vaccination records and test results. Governments must increase public awareness, highlighting the importance of data sharing, to increase this number so that clinicians can devise quality care strategies and researchers can expedite the discovery of new drugs and therapies. It is only obvious that securing consent from citizens and instituting strong data protection mechanisms are key to sharing health related data. As per the Roy Morgan Research poll conducted on behalf of Research Australia, approximately 91% Australians would be willing to share de-identified medical data if it went toward research purposes. Australia Privacy Act in Australia protects the data privacy for its citizens. The EU's General Data Protection Regulation (GDPR) and New Zealand's Privacy Act aim to ensure data privacy for their citizens and residents. Data from multiple data sources will help governments, researchers, scientists, and policymakers to make correlations, identify patterns of unusual activity, and identify anomalies to drive informed decision-making. Some potential use cases are listed below: Sharing of identified health data of citizens with health providers for clinicians to provide high-quality care Sharing of de-identified health data for researchers to find new drugs and therapies Sharing of data from restaurants, travel data, and so on, with public health departments to arrive at eating preferences and their health impacts Sharing of transport data from flights, trains, metros, and buses to identify the possibility of transmission of viruses Sharing of Google search results to identify the spread of diseases Sharing of non-intrusive test results from the sewage systems to identify the spread of diseases (this will help

governments minimize tests on individual citizens, reducing government expenditure) Sharing of inflation data, citizens spend data, and so on, to predict employment or unemployment status as well as preempting economic downturn and recession. Sharing of property registrations data can help with smart city planning. While sharing of data has improved globally, primarily due to the COVID-19 pandemic, challenges remain. Not everyone is okay with sharing personal information, not all of it at least. Some datasets carry highly sensitive information, which is why the willingness to share them is relatively low. The absence of specific security and privacy standards, lack of transparency, inaccuracy of data, frequent cases of data theft and data breaches (especially, in the media) only compound the challenge. In addition to fragile public trust, there are issues such as the lack of coordination across public departments, poor interoperability, as well as poor data quality and analysis capacity that need attention. A survey revealed that one in 10 Australians have opted out of the My Health Record (MHR) system, leaving the participation rate at 90.1%. The key to data sharing lies in how data is handled. Many data sharing programs and initiatives are cancelled due to the lack of public trust and concerns around data utilization. By handling data safely and securely, data users can increase the trust of the data subjects and increase citizens' inclination to share data. The steep rise of social media shows that people are willing to share their data if they see a clear value in doing that. This means the purpose of data collection needs to be clearly articulated to the data subjects, right at the start. Government agencies need to build the confidence in people and should campaign the benefits of data sharing. For example, how medical research and drug discovery become a lot more focused and faster, if the needed health data is shared. Government agencies need to embrace a culture that encourages data sharing. The Organization for Economic Co-operation and Development (OECD) has laid out a set of privacy guidelines –to promotes transparency, ensure accountability, and enable value creation by making government data available to all. Government agencies shall share public sector data by default, where it can be done securely, safely, lawfully, and ethically. To develop citizen-centric public services, data sharing among councils, data sharing councils with a state, a state sharing data with other states in the country and state(s) sharing data with the central or federal government is extremely important. We recommend the following to establish a robust data sharing mechanism: Robust data governance frameworks and modern data architectures are essential for data sharing. A cloud-based data sharing platforms can help public sector departments to share data. While data sharing is important, the ethical aspect of maintaining public trust in data sharing is of paramount importance. Trust, public engagement, transparency, user control, the flexibility to opt out, ad important aspects to consider. The public sector is facing a perception challenge when it comes to privacy, consent, and use of citizen data. There is a need for stronger regulatory frameworks around owning, storing, and sharing data across different levels of government. The public sector collects a high volume of data every day. At present, across most government agencies, this data is stored in legacy systems such as data warehouses, resulting in silos of data distributed across government departments and agencies. The absence of a standardized data architecture also makes it difficult to share data between departments rapidly and precisely. Establishing a modern data foundation

from the start can eliminate many challenges down the line, including data quality problems where rigid systems can lead to duplicated and obsolete datasets. The COVID-19 pandemic has highlighted the need for governments to put in place robust data sharing mechanisms in order for data to be available with full transparency and on time. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 ======================

Open banking will offer a one-stop solution to gig workers

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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. Pallava Srinath Senior Consultant, Banking, Financial Services, and Insurance unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. Gig workers across the world are part of a growing tribe.   They have been largely ignored by traditional financial institutions. By 2022, this category of workers will cross 50 million in the US alone, which is a significant demographic class. Yet, there is a market gap when it comes to providing financial solutions that are customized to gig workers' needs. These unmet needs primarily stem from the differences between gig workers and the general population concerning their patterns of temporary jobs, uneven income, and eventually, a lack of credit history. These factors make it challenging for financial institutions to offer products suited to the requirements of this financially underserved sector. While the intent of fintechs to serve the gig workforce is admirable, the solutions that address its financial needs are still piecemeal. The missing piece in this puzzle is a suite of comprehensive financial services under one roof. A wider adoption of open banking by financial institutions will aid in making this vision a reality. The current fintech model involves unbundling of banking services and providing efficient one-off financial services. This makes it challenging for fintechs to assess gig workers' financial viability. Fintech solutions are not comprehensive enough to serve all the financial needs of gig workers. Open banking, with its promise of unlocking the financial information of a bank's customers, can aid in delivering a transformative customer experience. Considering the fragmented work histories and earning flows of gig workers, open banking will enable access to such distributed information and transaction data for credit risk assessments and offer relevant wealth management solutions, insurance, and personalized financial products. At the core, this transformation demands a sufficiently large number of banks and fintechs to make information about customers, transactions, products, and services available through open banking application programming interfaces (APIs). When data from most, if not all financial institutions is available, fintechs and technology divisions at banks will be empowered to build solutions leveraging the best products and services from the financial services ecosystem to deliver a suite of comprehensive financial experiences to the gig workforce. The progress of open banking initiatives across Europe and the UK has been significant. It indicates that the practice has the potential to provide a transformative experience to the gig economy. For example, customers in the UK are now able to make rental payments through banks by building a credit history. A UK-based personal tax application helps gig workers file tax returns effortlessly from their mobile phones. Another digital bank based in the UK is helping gig workers buy insurance and create wealth using its in-app marketplace. Apart from Europe and the UK, other geographies are also accelerating their open banking initiatives. In Latin America, a gig economy data aggregator helps gather data from gig economy apps to provide insights to fintechs and support financial inclusion of gig workers. A consortium of big banks and financial institutions in the US has launched the Financial Data Exchange (FDX). The nonprofit organization is dedicated to unifying the financial

industry around a common, interoperable, and royalty-free standard for the secure access of user-permitted financial data. While the US market is warming up to open banking, it still has a long way to go, with end customers poised to benefit from its adoption. Without an open banking ecosystem, fintechs will continue to deploy one-off and insecure methods to access customers' financial data. Opening banks' data to third-party providers (TPPs) will facilitate fintechs to offer a wide range of services to gig workers. For example, they can consider rent payments and online purchase payments such as buy now pay later (BNPL) to build a credit history for individuals. With visibility to a gig worker's income and upcoming payments, fintechs can provide AI-based personal financial management solutions. Insurance is another key challenge for gig workers, especially in the hindsight of the pandemic, with a very small percentage of them having employee-provided cover. Open banking will provide full visibility to all the income streams and expense history of gig workers, empowering institutions to design accounting, taxation, and tax optimization services customized to their needs. When all these financial services are accessible under one roof in a seamless manner, the experience is bound to be superlative for gig workers. Driving Gig Economy Insurance with AI TCS NextGen Open Banking Offering SME Banking: Ushering in Winds of Change with Open Banking Participation of Gig Workers in Banking Institutions 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 =====================

Making Philadelphia future-ready with cloud 2.0 technology

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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. Robert Kane VP, US Public Services, TCS North America You have these already downloaded We have sent you a copy of the report to your email again. One of the key lessons the world reminded us of in recent years is that the pace of change continues to accelerate. Whether good or bad, rapid change is here to stay. Governments can gird themselves to cope with the increasing pace of change by using digital technology to get ahead of the curve. TCS believes change in the public sector starts with the way change is delivered. Governments across the world are faced with the challenge of meeting the rising expectations of people who have grown accustomed to better customer experiences with their favorite brands. But transformation projects aren't easy, and the way of doing things even a few years ago could be considered outdated today. TCS understands the unique needs of government and can transform its ability to respond to ever-evolving technology and citizen expectations. That's why the City of Philadelphia selected TCS to secure, upgrade, and transform OnePhilly, the city's system for HR, benefits, payroll, and time and attendance management. TCS is leading OnePhilly's foray into the next generation of cloud, Cloud 2.0, to improve the quality and reliability of city services for Philadelphians and to make the city government more efficient and effective. Disruptions around the world, including the recent pandemic, accelerated cloud adoption to unlock operational efficiencies. The City of Philadelphia recognizes that in Cloud 2.0, the power of the cloud can be leveraged to improve OnePhilly's performance, enable greater agility, and enhance operational efficiency. The TCS-led cloud transformation will help Philadelphia city government serve citizens dependably and effectively, while ensuring the city's IT infrastructure is future-ready. Improvements to back-office functions can help save taxpayer dollars and enhance staff efficiency. In a world where technology is accelerating the pace of change, citizen-centric public services begin with a modern, secure, and reliable IT infrastructure. TCS is committed to helping the city of Philadelphia improve its ability to meet the needs of citizens by ensuring its IT systems are future-ready. Our roots in the state of Pennsylvania run deep. TCS employees in the Keystone State help digitally transform and grow businesses across the country, including nearly half of Fortune 500 companies. Approximately 2,000 Pennsylvanians currently work for TCS, and the state is home to the recently launched TCS Pace Port Pittsburgh innovation center on the campus of Carnegie Mellon University. Underscoring its commitment to local communities in the state, TCS is a keystone partner of the Philadelphia Flyers hockey team and the Wells Fargo Center and developed the web-based mobile game Gritty Snax

based on the team's beloved mascot, Gritty. TCS was also named to the Civic 50 Greater Philadelphia list by Points of Light. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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.
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Transforming performance assessment with effective OKRs

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Brigit Dominic Functional Consultant, TCS You have these already downloaded We have sent you a copy of the report to your email again. Organizations continuously strive to bring more agility into their performance assessment methods. Renouncing the calibration process, establishment of feedback loops, and increasing the frequency of assessments have all been a step towards a more transparent and collaborative performance evaluation. This is where the 'Objectives and Key Results' or OKR model of performance assessment has been introduced. Using OKRs, organizations can establish a robust system in which everyone knows how to decide what needs to be done, how to get those tasks done, and how to allocate resources and continue to create real value for the organization and stakeholders. The OKR framework ensures that everyone is pulling in the same direction. OKR or Objectives and Key Results is a framework for goal management that helps organizations define and establish objectives and track outcomes. By adopting an OKR goal system, organizations can achieve better focus on results, increase transparency, and further strategic alignment. At the base of the OKR framework lies a shift from output to an outcome-based approach to work. Simply defining what do you want to achieve is not enough; it must include a way to measure this achievement. OKR can help organizations stay on track and bridge the gap between strategy and execution. OKRs mainly have three parts: (1) The objective you want to achieve, (2) Key results which are the ways to measure how the objective is achieved, and (3) Initiatives which describes the tasks to achieve the required results. Objectives are defined by asking the question Where do I want to go?. Objectives define the direction and focus for the planning period. Objectives should provide clarity on the end goal at a broader level whether it's an organization transformation, changing a process or driving innovation. Key results measure the progress of the objectives by asking the question How do I know if I'm getting there?. It has a metric that has a start and an end value. The third part of OKR is the initiatives which describe the steps to be taken to achieve the key results. The cadence of OKRs is usually flexible. This allows organizations room to easily adapt the OKR framework to best suit their needs and culture. Most companies choose a quarterly cadence to make it easier for stakeholders to have more real-time information. A quarterly performance assessment allows important decisions to be taken as the market changes; not after it happens. Rather than using OKRs as the deciding factors to arrive at final performance score, OKRS should be used to continuously ensure progress. KOKRs should be dynamic and aspirational. They are a tool for a process of continuous refinement and improvement. The OKR framework even allows for different cadences across the organization. Some teams would require a monthly review whereas others a quarterly cadence review would suffice. The cadence review provides a platform for teams to discuss and analyze which initiatives/key results are working, and which are not. The OKRs for each cadence should be built from the achievements and lessons learned in the previous review. Goal cascading is another feature that works well in the OKR setup. This is because cascading helps achieve one of the biggest aims of OKRs – organizational alignment and communication. This way, every employee's goals connect to higher level goals. Goal cascading, therefore, adopts a top-down approach. Typically, the CEO or any other high-ranking employee will set the company's objectives and the associated key results. The next level of executives will identify which of the company objectives

will their team be responsible for the set, relevant OKRs. This process iterates until all individual OKRs are aligned to the company's OKRs. Regular check-ins are also a process that adds to the success of the OKR framework. Regular evaluation to check if the goal is on track, reflection on the learnings, and setting the priority for the future is decided in these check-ins. Similar to the cascading process, check-ins also ensure everyone in the team is working towards achieving the same goal. To be effective, organizations need to continuously work on the set OKRs, discuss them, check the progress, and plan what ideas can be executed. OKR is a framework, but it's also a learning process that often involves a change in how people think about and measure the work they do, moving away from output-focused to outcome-focused approach. At the base of the OKR framework lies a shift from output to an outcome-based approach to work. Simply defining what do you want to achieve is not enough; it must include a way to measure this achievement. OKR can help organizations stay on track and bridge the gap between strategy and execution. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 ======================

Downstream Demand Inference & its Key Role in Demand Forecasting

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research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Dr. Avijit Bhattacharyya Technology Head, ERP on Cloud platform You have these already downloaded We have sent you a copy of the report to your email again. A supply chain connects multiple agents to provide goods or services to the end customer. For example, a manufacturing supply chain will normally consist of suppliers, manufacturing units, warehouses, and distributors to finally ship the product to the end customer through retailers. Ideally, the information flows from the customer to the supplier for the demand-side data and the reverse, from the supplier to the customer, for the actual operation data related to material flow. The demand data is assimilated at the customer- or the retailer-side through interpretation from historical data and actual order bookings. Under such circumstances, demand forecasting may be achieved through a statistical approach, using available methods of qualitative techniques, time series analysis, and causal models. The demand forecasting thus achieved may be categorized as follows: Thus, demand forecasting facilitates critical business activities like financial planning, sales and marketing plans, raw material planning, production planning, etc. The ERP systems enhance the provision to make inventory, logistics, and pricing decisions based on the greater visibility of information. This is the backbone for various formal coordination initiatives such as collaborative planning, forecasting, and replenishment as well as subsequent enterprise-level decision-making. Supply chains are becoming hugely dependent on the importance of such visibility of bidirectional information flow. However, there are many supply chains where information may not be shared between its actors due to several factors such as: Thus, the demand management strategy in a supply chain can be categorized as: In the case of DDI, there are two feasibility options based on the assumption that an upstream member is not aware of the demand values of the downstream member. Option I: The upstream member can infer or is aware of the demand determinants (explained later) of the downstream member; however, the demand values of the downstream member cannot be exactly calculated for a lack of understanding of the process to determine the downstream demand values. Option II: The upstream member cannot infer all the demand determinants of the downstream member; however, it may be possible for the demand values of the downstream member to be approximated if a certain demand process is applicable for a restricted subset of the available determinants. For example, the determinants of a downstream demand are factors like the price of goods or services

acceptable to the customers, buyer's income profile, consumer preferences, advertisements conducted, future price profile prediction (wait or buy now), etc. The upstream member is aware of a few determinants only and may adopt a process to determine the approximate demand from a restricted data set. Taken together, the above two options imply that it is not possible for the upstream member to infer both the demand determinants and the demand process and thereby know the demand values of the downstream member accurately as possible in an ideal situation (FIS). Thus, the dependability of inferring demand processes and demand values on the sub-optimal forecasting method increases. Due to the lack of a complete information chain, DDI is not possible with optimal forecasting methods, such as the Single Exponential Smoothing. This strategy, however, allows an upstream actor to infer the demand arriving at his formal downstream actor using the simple moving average (SMA) method in the forecast instead of using the optimal method like minimum mean squared error (MMSE). The DDI principles are applicable for an autoregressive integrated moving average (ARIMA) demand process with a non-optimal forecasting method that allows the upstream actor to improve forecasting and average inventory levels which directly lowers inventory costs. It is thus possible to understand and approximately infer the downstream demand based on the above principles of DDI. It has been shown experimentally that DDI generally outperforms NIS and is a much-preferred approach for forecasting demand in a supply chain with disjointed information. Scandinavian Airline Gains 30–40% Savings Panasonic Transforms Global Indirect Procurement Mother Dairy Simplifies HCM and HR Analytics on the Cloud Arysta Enables Global Procurement Insights with TCS 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 try after some time. Theme Font size Line height =====================

Specification-driven development: A Pragmatic Approach for Continuous Technology Upgrade

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generators to continuously and seamlessly upgrade the code with the latest technology or versions. For example, manually upgrading the presentation layer of the application from web application framework, such as Struts, to latest frameworks such as JavaScript/TypeScript-based frameworks can demand significant effort. This migration would often involve completely new development, while migrating to new technology, making it practically impossible for organizations to keep their application up to date with latest technologies. In this era of digital applications, specification-driven platforms encompass highly efficient, continuously upgraded code generators. They transform applications from one presentation layer technology to another, while mitigating risks of transformation. Besides, the cost of development and maintenance increases primarily due to the requirement of porting applications on various platforms such as desktop and mobile among others. Development platforms address this challenge efficiently by using technology-independent specifications and robust code generators that leverage modern web frameworks to generate responsive applications, resulting in remarkable user experience and delight. Business Service transformation from monolith to microservices Over the past two decades, business logic implementation has seen different types of variations and transformation, ranging from remote method invocation (RMI)-based service-oriented architecture (SOA) and web services-based SOA, to microservices-based architecture. As the size of application and business demand increases, it is important for any organization to transform the architecture pattern of business layers of various applications, partially or completely. Typically, an increase in the size of monolith applications necessitates a gradual split to migrate them to microservices. This could also involve identification of functional boundaries for potential refactoring into microservices. Applications developed using specification-driven development platforms can easily adopt this architectural transition. Such applications leverage the platform's capability of standard specification structures, to identify the functional boundaries, isolate those functionalities, decompose them to microservices and generate applications with pure monolithic/ microservices-based/ hybrid architectures. These development platforms play a significant role in assembling the application using various package structures, besides generating deployment configuration files for different cloud environments for moving applications quickly to various application servers and cloud environments. This type of development methodology typically add up two to six weeks to the development life cycle in the initial stage of development, but can save months or even years of struggle during maintaining the existing application and upgrading the application with newer technology. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Growing Application of Machine Learning in Data Management Software

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management software can embody next-generation automation. One possible scenario that comes to mind, is in the context of data privacy. With stringent data protection regulations coming in force across the world, enterprises are looking at inventorying sensitive data attributes. For accomplishing this, enterprises need automated data discovery. Data management software can start looking at typically recurring patterns of data. If the Data Officer in an enterprise flags the data with this said pattern as 'sensitive' in a given context, the software can 'learn' that this pattern potentially contains sensitive information and automatically flag data with similar patterns elsewhere, to be also sensitive. Another case where machine learning can play a role is automated master creation. Typically, master records are built from data derived from multiple sources. Let us assume a scenario, wherein, a telecom company receives subscriber detail records from two sources and the business process requires that the customer master be updated with these incoming records. Now, a question arises: which of the two sources must be trusted as having more accurate information, for each of the business data element contained in the incoming data record? Again here, one can imagine the master data creation software to be designed in such a way, that it observes and records the trend of correctness of the data element, as the data records arrive from each data source. Based on the 'correctness trend', the software machine automates the choice of source in making the updates. There is a collateral benefit of implementing machine learning in data management software: improved user experience. For example, data management software can track the 'frequently executed' functions by a given user of the software. Accordingly, the software can place direct links to such specific functions on the dashboard of the given user, for an enhanced user experience. Further, aligned to Business 4.0, it results in mass customization of the software. Again, the software can remember the 'last used state' prior to signoff. When the same user logs in the next time, the software automatically brings up the screen of the prior usage, thereby saving navigation time for the user. Being a nascent field, the possibilities of using machine learning for improved data management are endless. However, it is easy to get carried away by a few successes in a limited scope and the generated hype. The real scalability and performance of machine learning algorithms in the context of data management needs more research. Finally, when a software machine learns and takes automated actions, appropriate triggers and manual overrides must be available. Otherwise, when the context of learning changes completely, the software machine's learning can be flawed. Nevertheless, machine learning-driven automation is here to stay, and data management cannot remain untouched by it. In the long run, will machine learning have a strong impact on the way data management software functions? Please do voice your opinion below. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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

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Hire the right talent with AI-driven applicant-scoring

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operations. This time could have been better utilized in engaging with the candidates to understand them better, thereby enhancing recruiters' experience. According to a study, only 10% of organizations are currently streamlining recruitment using artificial intelligence (AI), while 36% of the organizations are keen to implement artificial intelligence and machine learning (AI/ML) into their recruitment processes in the near future. The need is an AI-driven applicant-scoring solution that can address this drawback by providing purely AI data-driven relevance scores for each candidate for the job they've applied for. This scoring mechanism can be applied for both internal as well as external recruitment. The solution should automate the simultaneous screening of several candidates and identifies top candidates having the right job fitment which makes the recruitment drive more effective, less manual effort-intensive, less time consuming, and reduce the overall time-to-hire. To build such an AI/ML solution, we can use NLP-based text classification, leveraging organization's historical recruitment data, onboarded employee profiles, etc. Through this approach, it is possible to generate different clusters with respect to various job profiles, skills, management levels, etc., subject to different business needs. When a candidate applies for a job, the solution will fetch the candidate details such as total experience and skills along with the applied job details as per business requirements. This data is fed into prebuilt AI models to generate relevance scores for the candidate against the job they have applied. This gives recruiters an idea of how much a candidate's profile matches to the job description of that organization. As indicated earlier, the solution will ease the efforts of the recruiters by providing a primary level of processing and sorting the candidate profiles in the decreasing order of relevance. It will significantly speed up the processing of applicants, allowing recruiters to process more applications. The solution must have an innovative engineering feature to deal with imbalanced datasets and use the ensemble technique to combine multiple AI models and get more accurate and generalized predictions. AI-based solutions have great potential in revolutionizing the recruitment industry. We believe that switching to AI-based processes will enable top recruiters to process candidates' profiles much faster, reduce manual efforts, reduce the impact of bias, and help the organization become more data-centric. It will enable firms to work more efficiently and provide better services to their clients by filling the job openings quicker with the best-fit candidates. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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.
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Teaching kids, picking litter and planting trees: Sustainability at TCS

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with more than 30 events across the continent built around the Tata group's philosophy of building sustainable businesses that are rooted in the community and demonstrate care for the environment. TCS' Head of Europe Sapthagiri Chapalapalli and Europe Sustainability Director Eugenio Longo started the day by outlining how technology, sustainability and purpose-driven businesses matter more now than ever panel discussion. Here's a flavour of the activities that took place across Europe: Workshops on how to generate and save energy were the focus of a TCS-led session for students aged between five and 12 at the Tanto International School in Stockholm. After a short presentation on TCS and its approach to sustainability, the workshop taught problem-solving connected to sustainability goals to small groups of children. TCS volunteers planted Scots pine, birch, rowan, yew and holly trees in Castile and León in Spain. The 25 volunteers planted 150 trees in a special conservation area and a special protection zone for birds, to help restore a stretch damaged by forest fire in 2013. The fire affected the habitats of imperial eagles, black storks and Iberian lynxes. In a "try before you buy" approach, our employees in Hungary were given the opportunity to test-drive electric cars from the TCS fleet. The goal was to showcase the benefits of electric vehicles and bust myths and common misconceptions surrounding the technology. A digital roundtable on e-waste management, a yoga class and participation in an ongoing conservation work in the protected area of Sas-Hill were also on the agenda. TCS colleagues and their families in Düsseldorf and Frankfurt were invited to take part in a clean-up day. The enthusiastic participants were given cleaning equipment and instructions on areas to cover while they enjoyed lunch and beverages. Clean-up events were also organized in Belgium, the Netherlands, and Norway. Our German colleagues also took part in a "living agile" online workshop to ideate on sustainability issues and use Design Thinking methods to develop solutions. Tackling climate change needs a collective approach. That's why in Helsinki, we hosted a roundtable discussion on how technology can fast-track sustainability. We spoke to senior leaders from a range of organisations, including HMD, Metso Outotec and Business Finland, to hear the steps they have taken to reduce impact on the environment. There were several other programmes, including a sponsored trip to Switzerland's Umwelt Arena for TCS families and friends, with a guided tour on sustainability in everyday life. Colleagues at our Copenhagen office got tips on saving energy through the winter, both at work and at home, while our Italian colleagues took part in a sustainability quiz, yoga, and a belongings swap. At TCS, we believe the only future is a sustainable future. Our activities this World Sustainability Day sought to amplify our ongoing efforts to engage more people than ever in harnessing technology to create positive outcomes. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Theme Font size Line height
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Why AI delivers better risk outcomes for financial institutions

Industries Blogs Highlights In this article What are the main questions before the C-suite when implementing these changes? What are the main challenges associated with using and implementing these technologies, and how can the C-suite overcome these? There are several ways in which businesses can benefit from an efficient application of technology in risk management: Conclusion 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. Ajay Atreya Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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 Ajay Atreya General Manager, Risk initiatives, TCS-ANZ You have these already downloaded We have sent you a copy of the report to your email again. The biggest questions need the boldest answers. That's why we're using our global scale, technology expertise and collaborative spirit to move towards a better today and a brighter tomorrow together. Strategic discussions amongst the C-Suite and regulators include forward-looking themes such as how AI-driven technology and analytics can strengthen risk management. Or how AI can help an organisation transition from a cost centre to delivering business value and how customer experience can be enhanced, i.e., better NPS scores by transforming risk processes. First and foremost, identification of the top risk priorities is critical. It will vary from one financial institution to another

based on the sector, required regulation, customer segments and the organisation's business priorities and objectives. Ultimately, the bank's strategy will drive its risk appetite. Once that is determined, appropriate tools and techniques can be identified after reviewing available data and building algorithms to gauge the proper set of models. Understanding how quickly these interventions can be implemented within an organisation requires a thorough knowledge of how data gets generated, stored, and used. Diagnostic tools can then alert users on unexpected events or metrics using anomaly detection algorithms. Dashboards incorporating machine learning model outputs can help predict risk outcomes and NLP to generate narratives to understand risk profile and underlying exposure changes.

Financial institutions find it challenging to deal with existing risks — becoming harder to identify effectively and timely since they manifest themselves in unfamiliar ways. It is crucial to start with a clear definition of the problem statement, specific end-state objectives, and time-bound milestones along the journey. A completely new process is not necessarily essential. Instead, fine-tuning the existing methods can help realise the benefit of new technology interventions. Defining and tracking KPIs linked to business imperatives to measure outcomes is highly recommended—such as increasing the size of control testing samples, making better and faster credit decisions, and reducing false positives. Adopting an AI-driven approach also requires a change in the mindset of the teams involved, comfort with experimentation and acceptance of the occasional failures, adoption of learnings which emanate from such trials and a change in nature of the roles and skills of personnel involved. Considering this, we are seeing increasing numbers of data scientists recruited by risk units across financial institutions in Australia, changing the overall focus of the workforce. Some organisations have up to 60% of the workload of a risk team focused on regulatory reporting and risk operations. Using new technologies and introducing new skill sets can give more time for data analysis, which creates new value streams and a wide-reaching shift change for an organisation more broadly. Finally, the importance of strong governance over the deployment of AI cannot be overstated. The knowledge that these technologies depend on a continuously evolving dataset puts the onus on firms to validate and calibrate the underlying algorithms. Increased risk of inappropriate feedback going undetected in those AI solutions that allow for continuous feedback and learning may compromise the solution's ability to produce accurate results. Improved capital management to optimise profits: Building, testing, and managing better risk and capital models to deploy monies more efficiently. AI can help manage model performance, calibration, validation, and analytics. Automation of credit decisions: The ability to compute data from multiple sources, including social media, leads to better pricing for low-risk customers and better management of collections based on data patterns. Climate Risk Assessment: APRA had recently initiated an exercise to design and deliver Climate Vulnerability Assessment (CVA) with prominent Australian Authorised Deposit-Taking Institutions (ADIs). The CVA will quantify aspects of the banks' exposure to climate risk and provide insights into the analytical and capacity challenges facing entities engaging in climate risk scenario analysis. Digital Farming Solutions: AI models use remote sensing data to derive expected crop yields based on climate monitoring, grading, and acreage. AI will become an integral part of the risk strategy of many

financial institutions to deliver better customer service, oversight over business operations and gain a competitive advantage. Since AI in financial services is still in its early stages, there will be a learning curve wherein stakeholders such as risk management teams and business and control functions will need to increase their technical understanding. Organisations that identify such cross-functional teams and incentivise them to collaborate will exploit the benefits of AI better. The emergence of Regtech players who can curate niche solutions catering to specific industry needs is another channel for financial institutions to realise these objectives. While adopting AI, firms will need to evaluate how to encapsulate specific interventions into the Risk Management Framework. They must ensure that the solutions remain fit-for-purpose and give businesses the confidence that AI can function within the boundaries set by the firm's culture and risk appetite. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Procurement mantras for achieving your ESG goals

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in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Amit Kumar Marketing Head, TAP™, TCS Platform Solutions You have these already downloaded We have sent you a copy of the report to your email again. The focus on Environmental, Social, and Governance (ESG) is now no more a concept and has become an integral part of any business model. The three pillars—E+S+G—form the core of sustainability which is the number one challenge for today's organizations due to multi-directional pressures. To accelerate the pace of achieving an organization's ESG goals in a systematic way, five procurement mantras can be defined: Align Procurement goals & objectives to the organization's ESG goals Develop a robust baseline for ESG Re-visit your spend category, category strategies and supply base Engage and innovate with your suppliers, and Embed sustainability in core procurement processes The focus on environmental, social, and governance (ESG) is now no more a concept and has become an integral part of any business model. Where environmental goals refer to how a company contributes to save and conserve the nature, social criteria manage an organization's relationship with its stakeholder — employees, suppliers, clients, and communities. Governance-related aspects focus on a company's leadership, audits, and internal controls. These three pillars are the focal point for all stakeholders, including the organizations own staff, investors, clients, consumers, and suppliers. These three pillars (E+S+G) form the core of sustainability which is the foremost challenge for today's organizations due to multi-directional pressures. There is pressure not only from consumers where sustainability features have taken prime slots of consumer agendas making them demand more and more sustainable products but also from governments that are imposing increasingly stringent ESG regulations. The procurement function's comprehensive overview of corporate ecosystems, including an organization set up, business units, suppliers, and customers put procurement in a unique position to make a real difference across all the three pillars of ESG, and can best support an organization's ESG agendas. The following five procurement mantras define a systematic approach and can accelerate the pace of achieving an organization's ESG goals: 1. Align procurement goals and objectives to the organization's ESG goals It's important that the procurement function must align its goals and objectives with the organization's ESG goals. The right way for this alignment is to set up the precise picture of the target ESG goals, decide specific objectives to achieve the goal, build focused procurement activities, and decide on key performance indicators (KPIs). These ESG goals for organizations can differ from industry to industry. As an example, a CPG (Consumer packaged goods) company can have a goal of becoming carbon neutral in 10 years. For this, one of the goals for procurement (aligned with the organization's goals) can be to achieve zero plastic packaging over a period of 10 years. Procurement then needs to create specific procurement objectives and corresponding

activities for ensuring zero plastic packaging, like including this as one of the selection and award criteria for sourcing and set a KPI to monitor it. 2. Develop a robust baseline for ESG It's important for the company to be aware where they stand today with respect to their ESG goals and hence, developing a well-defined ESG baseline is even more critical for procurement to start with. Constituting a cross-functional team to analyze the company's data from multiple sources (purchasing, contracts, accounts payable, etc.), creating an ESG baseline and building KPIs on that, such as spend per category or spend per supplier. It's also important to get a clear picture of the ESG impact along the entire supply chain and for that, it's important to focus on all suppliers in the supply chain ecosystem, including not only tier 1 suppliers but also tier 2, tier 3 and others. 3. Revisit your spend category, category strategies, and supply base Traditionally, the sole aim of category management was to deliver the most cost-efficient goods and services with no supply chain disruptions. There was almost zero/minimum consideration for ESG and its impact in category management. Now, with the global focus on ESG, there are stringent sustainability guidelines and regulations like renewable energy directives, carbon border adjustment mechanism, emission trading schemes etc., and these have a high degree of impact on a company's supplier base and category management strategies. The procurement team needs to revisit it's spend category, category strategy, and supply base against a broader spectrum of criteria and must include ESG metrics so that it can be towards a more local and a more robust supply base. The ultimate target should be to integrate procurement into the circular economy to mitigate risk and avoid unnecessary costs. 4. Engage and innovate with your suppliers To make ESG a successful program, it's imperative for the procurement unit to engage with one of its most critical stakeholders i.e., suppliers. For this, there needs to be consistent messaging to all suppliers regarding the organization's sustainable procurement objectives and this should be two-way, to get a buy-in on the goals. But an organization can have hundreds of suppliers and practically, it is not possible to engage with each supplier to achieve the ESG goals. The best approach would be to categorize the suppliers into relevant categories and then define relevant targets for each category by supplier (or supplier group) based on where the largest impact can be achieved. This will ensure that the initial efforts are oriented towards the areas of business where the maximum impact will be delivered. Sustainability should be on the agenda of every supplier interaction, project review, and business review stages. 5. Embed ESG in procurement processes with the help of source-to-pay technology platform To achieve integration of ESG into the procurement processes, it's important that all the core procurement processes are ESG-driven. A technology powered source-to-pay platform can certainly help in embedding ESG in the procurement processes. For example, during supplier onboarding, while sourcing goods and services for the organization, the sourcing manager can include a section on ESG or sustainability and request suppliers to provide the data. New age sourcing platforms provide pre-configured, industry-specific ESG questionnaire templates with an option for multiple choice answers, yes or no type questions, allowing multiple attachments for certifications, date picker features, and many more features and functionalities that allow the sourcing manager to quickly create ESG-related sections in their RFPs. Assigning weightage and auto-scoring with

built-in AI models help in assessing suppliers and providing the right ESG and sustainability score for the suppliers. There are third-party, ready-to-use databases in the market that help an organization to know a supplier's ESG scores. Such databases can be easily integrated with source-to-pay platforms. One can consider a sustainable supplier while awarding the RFP to the best value suppliers. Even in a downstream process like purchasing, requisitioners can easily view the ESG score of the suppliers while raising the request for buying any goods for their requirements. There are multiple use-cases in source-to-pay where ESG can be embedded in procurement processes and technology is a great enabler for achieving it.   Conclusion ESG is the way forward for organizations and the procurement function has no other option but to adopt these mantras to accelerate the organization's journey towards achieving its ESG goals The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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. =======================

Industrializing machine learning in manufacturing

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With several new ML subfields and applications emerging at a rapid pace, businesses are even more eager to reap the benefits of ML and drive competitive advantage. Achieving this objective should be easy, provided organizations can seamlessly scale their ML initiatives beyond the pilot stage. McKinsey Technology Trends Outlook for 2022 lists 'Industrializing ML' as one of the top 14 trends in technology. However, what's surprising is that 72% of the organizations, including manufacturing businesses, have been unable to scale their AI-ML initiatives.   Often, business units in large or medium-sized organizations deploy teams of analysts to gather quick insights. Such a setup helps reduce their dependency on the central IT organization for their day-to-day needs. While business analytics teams have traditionally used tools like MS-Excel, MS-Access, and Qlik Sense to rapidly draw business insights from the latest data available, they are increasingly tapping into machine learning to optimize outcomes. But the problem is, such teams continue to work largely in siloes, with little collaboration and oversight from centralized IT or the data organization. The siloed setup results not only in a plethora of analytics tools but also results in redundant efforts across the organization. What's more, most business analytics teams lack the resources to operationalize their models into production-grade systems. This means the centralized IT or data group has to step in to deploy their machine learning models into production. The problem with this approach? The models developed by business analytics teams typically utilize small and often outdated datasets, making them less likely to scale well with newer, broader, and larger datasets available in production systems. Not only that, when these models are re-engineered to integrate with the production dataset, they often do not perform at the same level as they did in their original development environment. That's because the difference between experimental or development setup and the production setup does not merely stem from the size of the dataset or data recency. Additional factors such as production performance requirements, security, access control, and stable libraries must also be considered. Successful transfer from the development to the production environment also demands dedicated roles, depending on factors such as ML team size, number of ML applications, and release frequency. Many ML organizations task their data scientists with the additional responsibility of production release management. This takes

precious time away from data scientists and severely limits their ability to work on developing more value-creating solutions. Other organizations may require their data engineers to take on this responsibility. But most data engineers lack a complete understanding of the ML application lifecycle and DevOps. Successful operationalization of ML applications requires not only a well-defined ML operationalization process and dedicated roles but also an enabling toolset. Relying on existing DevOps toolset will not suffice as they are not fully equipped to address unique ML requirements such as data-dependent algorithms, data lineage tracking, model versioning, model performance monitoring, drift detection, model explainability and so on. The good news is several open-source and commercial MLOps (machine learning operations) tools are emerging that can assist businesses in creating a suitable MLOps stack – if the organization's unique requirements are clearly articulated. Using these new tech stacks, organizations can simplify data management, model development, and deployment to scale easily across the full ML workflow cycle. Successfully industrializing ML, however, requires an ideal mix of ingredients, such as the right organizational structure, clear release process, and well-defined roles. Selecting the right MLOps technology stack and securing stakeholders' buy-in for a suitable ML governance model is a good place to start. Once the proper tools and environment are set up, it's easy to scale ML adoption across the organization – without impacting existing operations. 21st-century neural value chains — Heralding the future of manufacturing Neural plants – The factories of the future The future manufacturing enterprise — Sustainable by design Adopting XR Solutions for Product Innovation & Business Growth 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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5 ways cloud will shape your enterprise in 2023

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our Newsroom TCS works hand in hand with world-leading investors. Parthiv Shah Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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 Managing Partner, Cloud Strategy and Transformation, TCS You have these already downloaded We have sent you a copy of the report to your email again.   In 2023, TCS believes five cloud trends will shape global enterprises — Cloud 2.0, sovereign cloud, 5G and edge computing, industry cloud, and the emerging cloud talent gap. These predictions form part of our latest guidance about which cloud innovations are most likely to influence the C-suite and how businesses can best navigate these trends effectively and profitably, while avoiding potential pitfalls. These insights come as cloud adoption continues to increase, despite inflation and economic uncertainty putting pressure on corporate spending. The rapid pace of change has left many business leaders anxious and confused about their technology investments, but this new era demands better strategic planning and a long-term vision. With more than 616,000 TCS employees operating in the cloud, and almost all our customers utilizing TCS cloud services, what's next for cloud is top of mind. Technological advancements are expanding and converging with each new day, so a clear focus on investing in the right cloud infrastructure is one of the most important decisions any enterprise will make in 2023. Business leaders need to understand that the cloud is now an essential business strategy - not just an IT solution. Here are the five essential trends that businesses should follow for cloud success in 2023: Cloud will enter a new phase, becoming a core pillar of business strategy. Many initial cloud investments were made in a rush during the onset of the Covid pandemic to cater to remote working or a short-sighted goal of cost savings. Now the global economy is forcing businesses to evaluate the true value of their cloud strategies by using metrics and businesses are starting to shift focus to fine-tuning their cloud-value evaluation models and asking how it can support customers or diversify revenue sources. This new perspective positions the cloud as a core pillar of modern business strategy which is crucial for driving growth, transformation, and continuous innovation. New data privacy regulations will push enterprises into sovereign cloud. Sovereign cloud is a security posture that any organization can take to safeguard valuable data and

systems from unauthorized foreign access on either a country or local level. The United Nations Conference on Trade and Development reports that more than 70% of countries worldwide have passed data and privacy laws which are prompting organizations to add sovereign cloud to their multi, hybrid, and poly-cloud strategies for regulatory compliance. This is set to make smart system integrations, interoperability, and portability more complex but imperative in 2023 and beyond.   5G and edge computing will significantly accelerate business operations. By bringing computation and storage closer to data sources, businesses can improve their response times and save bandwidth. At the same time, advances in the edge cloud are set to multiply applications on the frontlines of businesses, including in-store and on-site operations and sustainability solutions. Although still in the early stages of development, quantum computing is inching closer to reality with an increasing number of companies preparing to adopt quantum capabilities. Dramatic progress in artificial intelligence, machine learning, virtual reality and augmented reality for eventual immersion in the metaverse, is also expected to deepen cloud's role in modern business and everyday life. Enterprises will begin reaping the rewards from their industry-specific cloud investments. Cloud computing can be uniquely tailored for specific sectors to deliver business value, not just more effective back-end IT operations. From fast-changing supply chains to energy efficient sustainability initiatives, smart businesses that are investing in industry cloud-native solutions to address common pain points can expect a significant boost in their KPIs. Consumer-facing sectors—like retail and hospitality—will also see growth in industry cloud activity, as they are best positioned to make immediate use of edge computing. TCS expects industry-specific cloud success stories to flourish from this year onwards. The talent gap will widen as cloud technologies evolve and demand new digital skillsets. The cloud is creating new opportunities for companies and employees, but the challenge is training staff to become multi-cloud architects. This will take a collective global effort across enterprise, government, academia, and industry bodies to equip employees with the training and tools to thrive in the new era of cloud innovation. We expect a race for top talent contrasting against the broader pressures on workforces due to the economic downturn. Businesses must double-down on training, retraining, and retaining their staff if they are to turn their vision for a cloud-powered business into reality as quickly as possible. Cloud spending will continue to face scrutiny given the global economic headwinds. But it will endure and, in fact, increase, especially in the medium- to long-term. New technologies and collaborations are driving innovation and will continue to deliver precisely the types of cloud-powered services becoming vital to global business. Companies that proactively develop 'cloud-first' strategies to address and master these new trends will be dramatically better-positioned to realize healthy returns on their investments into 2023. TCS works closely with all the top public cloud hyperscalers to provide its customer base with best-in-class digital solutions and services, and the company continues to support large-scale industry-specific cloud transformation projects on a global level. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 =======================

Embracing the future of sourcing in an intelligent way

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unforeseen supply chain disruptions due to pandemics and wars, these complexities have increased many folds compelling procurement leaders to reevaluate strategies and look for sourcing automations by adopting innovative technologies and platforms to reduce uncertainties of any kind that have dependencies on the aforementioned factors. Traditionally, sourcing professional have been managing sourcing with some help from technology and spreadsheet-driven calculations, thereby ending up doing tactical, repeated work instead of doing the strategic work. Supply chain disruptions due to pandemics, Environmental, social, and governance (ESG) requirements etc., have forced sourcing professionals to create strategies that weigh less on cost and more in favor of on-time supplies. In simpler words, sourcing professional are looking for solutions which would simplify the sourcing process by embedding cutting-edge technologies and smart algorithms using artificial intelligence (AI), machine automation, and 360-degree transactional insights. So, what is this AI that we keep hearing about? Well simply put, it is the years of tacit knowledge that we, as sourcing professionals, have developed and coded into technology platforms to make sourcing repeatable, while sourcing professional focus on adding strategic value to the organization. In other words, the procurement organization of tomorrow will need to evolve from purchasing and sourcing to enabling a seamless digital experience. Let us now look at some of the key innovative approaches that organizations are looking to explore: It is imperative that AI models are going to improve an organization's strategic sourcing capabilities. These models will help in managing sourcing in ways that not only save significant amounts of money but also open new and unique ways of procurement to deliver value to a business. Let's come together in the journey of embracing the future of sourcing the AI way. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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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Seamless biopharma manufacturing is here

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Dr Arpita Sen Dr Venkata Sudheendra Buddhiraju Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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 Dr Arpita Sen Innovation Evangelist, TCS Dr Venkata Sudheendra Buddhiraju Senior Scientist, TCS Research You have these already downloaded We have sent you a copy of the report to your email again. The traditional batch mode is more complex Complexity in the manufacturing and composition of essential drugs adopted by biopharmaceutical companies is one of the reasons for high drug prices. Unlike regular pharmaceutical drugs, biopharma drugs are synthesized using living cells, necessitating various purification steps. This is time-consuming and demands stringent quality standards. The industry norm is to manufacture biopharma drugs in batch mode. Despite its flaws, the batch production of biopharma drugs is widely adopted due to its familiarity, lower equipment cost, and relatively lower failure rates. However, the need to stop at the end of each step results in increased hold-up times. This increases the overall cost and production cycle time, making the process inefficient. Moreover, manual intervention induces errors that are expensive to bear. There is, therefore, an increasing push to switch to continuous biopharma manufacturing. Toward a seamless workflow where unit operations are uninterrupted In continuous manufacturing, all unit operations work in an uninterrupted mode – from the entry of raw materials to the output of final products, all happens seamlessly. The product is manufactured at a single location end-to-end, with no hold-up times. As a result, most unit operations occur in parallel, with maximum utilization of equipment and space. Continuous biopharma manufacturing involves upstream and downstream processing steps. In upstream processing, the biomolecules are generated and consist of harvesting and clarification steps. In downstream activity, purification separates the desired drug from a host

of impurities. End-to-end unit operations in a continuous biopharma manufacturing process encompass perfusion bioreactors, acoustic wave separation for clarification, multi-column chromatography units, viral inactivation, and single-pass tangential flow filtration. Integrating all operating units in parallel is feasible and results attainable Biopharma companies are now moving toward adopting the continuous process. The maximum these companies have achieved is operating one or two units at a given time in a continuous mode. Operationalizing all the units in tandem is yet to be realized. The first step to attain this objective would be to make individual constituent unit operations continuous. Each unit is represented with accurate mechanistic models with optimization and control strategies via digital twins of the processes. The final step is integrating and connecting these individual units with a plant-wide simulation, optimization, and centralized control system. A continuous process improves yield, turnaround time, and cost reduction The continuous process depends less on human intervention, requires a smaller facility footprint, and is open to scaling, automation, and adaptation. Transitioning between different unit operations is also relatively smooth. Process automation and control systems with integrated physics-based models can help achieve stable critical quality attributes by adjusting critical process parameters in real time. This helps improve process robustness, efficiency, and utilization, as well as quick detection and correction of anomalies, if any. Continuous manufacturing is gaining traction because of its ability to improve product quality, production consistency at lower costs, flexibility, and shorter time-to-market. By integrating single-use technology into the process line, the initial capital investment could come down, too. Moreover, acceptance of continuous manufacturing by the pharma sector is likely to grow with the demand of low-cost lifesaving drugs, and vaccines from unforeseen events such as the COVID-19 pandemic. The increasing approval of biologics by food and drug administrations and capacity expansion plans by manufacturers to meet the uneven demand for affordable drugs further strengthens the need for the shift. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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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Measuring cloud value in your digital transformation journey

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With a set of pre-defined metrics, CVMM helps measure cloud value against various dimensions and parameters, specifically in: Make sure your enterprise capabilities for business transformation and innovation are mapped to deliver value realization. A strong digital core paves the way for the next horizon—innovation at a business process and business model level. And CVMM provides enterprises with an industry-specific recommendations for innovative business models, domain-specific value business efficiency gains and evolution of organizational capabilities to drive innovation, Organizations can combine the power of cloud and digital technologies to create innovative business models, new products and services, and create delightful experiences for users. CVMM can be a useful framework to measure cloud output for delivering total experience to internal and external end users. Enterprise capabilities for business transformation and innovation are mapped to deliver value realization not just for competitive parity, but also for market differentiation and disruption. It identifies whether enterprises are adopting industry available cloud use cases or are creating newer, innovative, and disruptive solutions. Powering ecosystems with purpose-led collaboration across industries is a high-order transformation, where enterprises collaborate with competitors and partners to provide multi-domain innovation. Collaboration is key to business success in this connected world. With ecosystems, businesses can combine their internal capabilities with external innovations. Cloud powers such next-gen ecosystems that enable enterprises to leverage customer data, and new innovative business models. It also helps adopt advanced technologies like blockchain, IoT, API integrations, agile processes and practices, encouraging collaboration and development of partnership with ecosystem players. CVMM outlines such collaboration models across industries and provides use cases and metrics for measuring the resilience and scalability of such collaborative solutions. This phase of CVMM is highly customized and is curated based on ecosystem domains. What's clear is that enterprises can continuously realize value in their cloud journey with CVMM, which assists in: CVMM has been extensively socialized and continuously updated based on feedback from industry analysts, consultants, and practitioners. Leading analysts such as Everest has acknowledged TCS' thought leadership in curating the cloud value measurement model to address enterprises challenges and the need for a metrics-driven framework. Enterprises on their cloud journey would do well to adopt CVMM as they seek to get the most out of cloud. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Multi-modal product and program portfolio planning

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Kanban are adopted by agile teams, scalable agile frameworks like SAFe, Spotify, LeSS, and DAD are required to scale up agile to manage multiple programs and portfolios at all levels of an organization - up to the overall enterprise level. In a multi-vendor scenario, there is a possibility that each vendor may adopt different agile frameworks and customers may face challenges in getting a consolidated picture of all the portfolios. Also, different lines of businesses may adopt different agile or traditional frameworks as the need may be. In such cases, it is difficult to manage multiple portfolios and get a consolidated picture. Large and complex organizations pose challenges in managing multiple programs or portfolios, be it traditional or agile. Portfolio managers do not get a consolidated view of all the products/ or programs that deliver business value. Product and program managers are not able to plan the right work at the right time due to the lack of clarity from the portfolio managers regarding what is priority for the customers. Agile teams who work on development, build, testing, release, and deployment of software do not get full visibility into priority features or user stories that they need to work on. As teams are not able to manage dependencies with other teams, they are unable to deliver in cadence. Managing such challenges requires a strong multi-modal platform. A multi-modal planning and delivery product or platform should be flexible to support multiple methodologies - be it agile or traditional. Such a product should also provide transformational capabilities to support transition from traditional to agile framework and also, switching between agile frameworks depending on what really works best and what delivers value to the business. More importantly, capabilities are also needed to transform from the project-mindset to product-mindset. Portfolio managers are required to collaborate with the business customers to understand requirements. Portfolio managers will need complete visibility of the flow of customer requests throughout the software development lifecycle (SDLC) and ultimately, strive to deliver value to the customers. They need a platform to communicate the high-level requirements to program managers for further planning and implementation. Program managers may be required to adopt traditional methodologies for managing some programs because the requirements are more stable and traditional methodologies are more suitable for such programs, whereas more and more program managers may need to adopt to agile frameworks where the requirements keep changing and there is a continuous need to deliver value incrementally. Different products and programs may follow different scalable agile frameworks like SAFe, DAD, LeSS, Spotify etc. The enterprise agile planning and continuous delivery lifecycle product or platform should provide configurable capabilities so that the customers may configure multiple programs in different modes supporting such scalable agile frameworks. A multi-modal product or program planning platform should help users to configure any workspace to support the required scalable agile framework. The agile planning and tracking capabilities should help portfolio managers to plan and track high-level value streams and epics. It helps programs managers to break down the epics into features and plan those into releases and iterations. Features are further broken down into user stories. The estimation and prioritization capabilities should help the users in prioritizing features and user stories, and help them to manage dependencies between them. The continuous lifecycle management capability helps various teams to manage their backlog of user stories and implements the same. All

stakeholders are required to measure progress against the planned work to understand the progress and issues. KPIs and metrics defined at all levels of the organization help various stakeholders to understand the progress and impact of any issues. The development team needs to know what user stories they need to work on. The QA team requires a platform for testers to create and execute test cases. There is a need for test case versioning and multi-step test cases. Workflow management is the core of test planning and test execution. Defect management helps QA teams to create and manage defects. Each test case must be traceable to the respective backlog item and each defect must be traceable with the respective test case. The development team and the QA team require to collaborate with each other closely to discuss about the defects and resolutions for the same. Developers, testers, operations, and support engineers need to closely collaborate with each other to continuously build, test, and deploy software. Continuous integration, continuous testing, and continuous delivery and deployment are key to delivering value to customers continuously to ensure customer satisfaction. An end-to-end orchestration of continuous integration, testing, and delivery tools ensures that high-quality software is delivered to the customers. Automation capabilities for enterprise-wide agile and DevOps Adopting Agile Methodology for Better Operations & Business Data Quality Management: Enhancing Performance with AI/ML A Pragmatic Approach for Continuous Technology Upgrade 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 =====================

Antifragile: How resilient business thrives in testing times

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3 MINS READ N. Ganapathy Subramaniam Chief Operating Officer & Executive Director You have these already downloaded We have sent you a copy of the report to your email again. When the pandemic hit in early 2020, it seemed like an era-defining shock — a Black Swan event. Some even likened its impact to that of a world war. Three years on, our world has been exposed to an entire cascade of shocks. From the continued ripples of COVID-19, the war in Ukraine and the energy crisis to rampant inflation, we are surrounded by a whole bevy of Black Swans. And as much as we would all like to return to less turbulent waters, it's clear that volatility, uncertainty, complexity, and ambiguity (VUCA) are set to stay with us for some time yet. For business leaders, this requires a change in mindset. In response to the pandemic, the focus shifted decisively away from running operations (cost-) efficiently to making them resilient and robust. Organisations now need to take their evolution one step further. Not only do they need to be resilient in their response to Black Swan events, but they must also be able to pivot at an unprecedented rate to keep pace with technological, social, political and industry changes.   This is as much a threat as it is an opportunity. But to grasp the latter, we have to become what the author Nassim Nicholas Taleb has called 'antifragile' in his seminal book The Black Swan. Antifragility goes beyond the concepts of resilience and robustness: it's not just recovering from disruption but becoming better because of it. What does this mean for businesses? Since the pandemic, organisations have not stopped re-evaluating, reorienting and transforming themselves to prepare for whatever might come next. While there are many unknowns, one thing is certain: the need to respond to challenges and opportunities at lightning speed. Now, more than ever before, this requires taking a holistic view of a business, rather than focusing on organisational silos. Supply chains, product development, talent management and technology do not stand alone, they are increasingly defined by their interconnectivity. Making changes in one area will inevitably affect the others. They must all align and work in unison so the organisation can flex as the macro and micro environments demand. Technology is a case in point, not least because it lays the foundations for all the other areas. Antifragility goes beyond the concepts of resilience and robustness: it's not just recovering from disruption but becoming better because of it. It would be an understatement to say that the pandemic accelerated technology adoption and digitalisation that would have normally taken years if not

decades to break through. The technologies we're talking about were not new by any stretch of the imagination. Cloud, automation, artificial intelligence (AI), machine learning (ML) and agile approaches had been around for some time. But for many businesses, there had been no pressure to roll them out rapidly. That pressure came when COVID-19 drove many workers to their home offices, bedrooms and kitchens— and operations could only be held up by enabling remote working. While this transition was forced, the success of enabling technologies to keep businesses afloat set the future direction. Few would now question their benefits when it comes to meeting their business goals, even in the face of disruption. What is more, with the pace of change and the high levels of uncertainty we face, there is a premium on adaptability — day to day, not just when we're surrounded by Black Swans. An organisation's ability to continue operating and, critically, innovating will depend on it. Only by harnessing current and future frontier technologies can we maintain the business resilience required to do so, not least because the market environment is becoming increasingly complex. We may breathe a sigh of relief at having got on top of Cloud, AI and ML, but the next wave of frontier technologies is waiting in the wings. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Theme Font size Line height =====================

Can insurers deliver value as ecosystem orchestrators?

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Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 2 MINS READ Vinay Kumar Patri Senior Business Consultant, BFSI, TCS You have these already downloaded We have sent you a copy of the report to your email again. HIGHLIGHTS The insurance industry comprises a variety of players who are increasingly adopting a more digital way of working. Many insurance providers work across different lines of business. To keep up with the explosion of changes taking place, insurers must strengthen their brand value and deliver on customer outcomes by becoming orchestrators. We explore how insurers can strike the right note with their customers by collaborating with ecosystem players, right from formulating the right business model to using the correct technology. The insurance market is constantly evolving. With new challenges presenting themselves almost daily, industry players are exploring innovative business models to tap into the opportunities they bring along. One such is where insurance service providers and allied players come together to form an ecosystem where each player offers something that may be of immense value to another. This includes many insurtech companies providing novel services such as data providers, sales aggregators, analytics firms, or claims service providers. It's not just the industry players that are proliferating. With the increasing adoption of digital technologies, increase in the volume of electronic data, and the ubiquity of mobile interfaces, the range of services and products have also grown. New market players are offering products and services backed by improved capabilities across the insurance value chain. Such capabilities, which include data aggregation, analytics, and more, help insurers to improve business agility. For instance, a data and analytics service provider may help an insurer conduct better risk assessment by improving the underwriting function. This enhanced business agility, in turn, triggers improvements across the insurance value chain such as ensuring products or claims are rolled out faster or customer servicing takes place faster. Niche services offered by market players such as insurtechs, sales aggregators, and more to insurers, in particular, are packed with innovation and cutting-edge technologies that can help insurers gain competitive advantage. What's more, many of these providers cut across lines of business, so they can support rather than compete against each other. Insurance companies can capitalize on this synergy among players to move beyond boundaries and offer more to customers.   Insurers play the role of orchestrators and strengthen their brand value by offering greater value to customers. As orchestrators, insurers consolidate services and bring players together to improve the entire insurance process, from the time a customer is onboarded and throughout the entire cycle of servicing. For instance, they accelerate the underwriting process using a combination of traditional data sources and non-traditional ones offered by the market players. Traditional sources include motor vehicle reports and medical information bureau

reports such as lab reports, analytics and predictions based on lab reports, and more; non-traditional sources are clinical lab data, electronic health data, biometrics, genomics, and more. Besides, insurtech firms use predictive models to enhance the precision of underwriting. The use of risk ratings through various combinations of data sources has automated underwriting and straight-through processing. The resultant non-invasive and simplified underwriting enhances customer experience. When it comes to medical insurance, the possibilities of personalization and better pricing for customers are many, especially as more and more people are now willing to share their vitals through connected devices. This allows for vast amounts of data to be compiled and assimilated. Working in tandem with business service providers and insurtech players, insurers can improve the experience for the insured. Anticipating and delivering as per customer expectations involve considerable reimagination of the customer journey. Behavioral analytics backed by artificial intelligence (AI) and machine learning (ML) plays a vital role in ushering such richness in customer interactions. For example, AI and ML platforms offered by certain insurtechs predict the likelihood of life-changing events so people can prepare for the moments that matter. This adds a lot of value for fostering customer experience. Similarly, certain insurtech companies offer services for the early detection of medical conditions. Claims automation is a big leap that insurers are attempting; some have succeeded, many are on the journey. Accelerating this journey is imperative in this fast-evolving market. A few insurtechs have automated the claims process and it keeps customer interventions at a minimum, thus enhancing the overall experience. Insurers collaborate with ecosystem players to formulate business models for packaged products or services. A synergy among technologies and business services translates into exponential benefits. For example, integrating financial, insurance, or wellness products results in embedded services, which generate value for the end customers. As orchestrators, insurers play a key role in packaging and embedding services from various players and catering to their key business functions such as sales, marketing, underwriting, and more, potentially enhancing the customer experience. The insurance ecosystem is expanding with a large number of players offering different types of services powered by cutting-edge technologies. Integration of these services can deliver immense value at the point of sale. Insurance organizations have started seeing the value of tapping into the synergy between these players. It's time that insurers move from being a part of a business system to being orchestrators of the entire system. Working with ecosystem players to enhance customer experience at every touch point is a surefire way of striking the right note with customers. The key role of technology in Insurance to meet millennial needs Tech-powered Models in the Insurance Sector: Reclaiming the Unclaimed Property Ecosystem integration in financial services Unbundling Insurance to Create Hyper-customized Solutions 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 cyber insurers can fend off IoT risks

HIGHLIGHTS In this article Introduction Stay aware, stay protected Fighting IoT risks: Three things to focus on De-risk with confidence 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. Nirmal Kumar J More blogs Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. 2 MINS READ Nirmal Kumar J Solution Architect, BFSI You have these already downloaded We have sent you a copy of the report to your email again. While the internet of things (IoT) market has proliferated across businesses and industries, including insurance, the security risks have increased too. Many insurance businesses have become targets of cyberattacks. By keeping up to date on the latest IoT technology, insurers will understand the risks they face and know how to mitigate them. By assessing the risks and taking a preventive approach, insurers can secure their customers' assets. Industries worldwide are rapidly adopting the internet of things (IoT). This enables them to unlock new business value, drive revenue growth, and gain competitive advantage. The IoT market is on a rally—it is expected to double from $300.3 billion in 2021 to $650.5 billion by 2026, according to market data firm ReporterLink. However, IoT security is still lagging, and manufacturers have been slow to respond to device security needs. Recent cyberattacks like the one against Norway's online services and that against the Port of London Authority have

all targeted IoT devices, highlighting the susceptibility of these systems as soft targets. The cost implications for insurers are heavy: According to Fitch Ratings, cyber insurance claims grew by 200% in three years; in 2021, commercial insurer CNA Financial paid hackers $40 million as ransom for a cyberattack. In this high-risk environment, how can cyber insurers mitigate risks for themselves and avoid making hefty payouts against claims?   First, insurers need to keep pace with IoT technology. This will help them to fully understand the risks that come with it and to be able to mitigate those risks. Their awareness in the following areas can help: Implications of IoT-related policy wording: Most IoT devices have smart features that have the ability to control other physical systems or machines. Breaches can lead to serious data privacy issues, exposure to property loss, bodily injury, and the like. These new attack vectors may not be defined or covered under existing policies. For instance, an IoT telematics device may be hacked to provide a false guidance and cause an accident. The resulting liability may turn out to be an area of contention for coverage either in existing lines or cyber insurance. Without policies that clearly define exclusions and inclusions, insurers may end up with large claim payouts. IoT in commercial insurance: Driven by proven improvements in productivity, insights, and savings, enterprises are moving towards industrial IoT and smart factories. On the flip side, businesses are emerging as critical targets for attacks. Cyberattacks extend beyond IT infrastructure to non-IT assets such as equipment and workplace safety sensors. A compromised IoT device results in large-scale damage leading to higher claims. As insurers are now increasingly capturing data from IoT devices in real time, they face two challenges—securing IoT devices and protecting the data they collect. To address the security issues around IoT devices, insurers can take advantage of them by automatically triggering claims when there is a breach. Insurers can perform a remote damage assessment due to the connectivity of the devices and the data stored in them. This positions insurers to gain early insights in risk mitigation, pricing, targeting of customer segments. Emerging applications of IoT: While advancements in technology enhance customer experience, they also open new avenues for risk exposure. For example, blockchain-based smart contracts on IoT devices pave the way for automated transactions resulting in improved operations. New technology platforms like the metaverse also use IoT for enhanced user experience. IoT devices with in-built artificial intelligence (AI) store customer data locally for real-time decisioning. However, without the appropriate security measures, these technologies are vulnerable to attack. Insurers with the capabilities to assess and mitigate risks will offer comprehensive coverages and improve their market share.   Here are a few things cyber insurers need to focus on: IoT risk assessment: The nature of IoT risk demands a quantifiable risk assessment approach. By adopting new risk assessment models such as the IoT Micromort Model, companies can predict impact using units of mortality risk or value at risk based on economic impact. These allow insurers to offer improved coverage devoid of ambiguities for high-risk IoT environments. IoT risk prevention: Ensuring cyber awareness among users along with establishing proper cyber hygiene practices are key to risk prevention. Insurers can also enforce built-in security or encryption in IoT devices. Moreover, cyber insurers can recommend employing user entity and behavior analysis (UEBA) as well as endpoint detection and response (EDR) solutions to customers to get a real-time view of the end points and

associated threats. IoT safety and compliance: Regulators have taken cognizance of the IoT trend and have introduced bills and proposals providing security guidelines to reduce IoT device vulnerabilities. California's IoT Devices' Security Law and the IoT Cybersecurity Improvement Act 2020, among others, are all aimed at regulating IoT devices and mitigate risks. With data privacy regulations applicable to IoT devices, future regulations will focus on enhancing security, such as banning preset passwords and assigning IP addresses, among others. Embedding a thorough compliance check will help insurers to identify security loopholes and weak spots. Considering the multitude of benefits, the proliferation of IoT is inevitable. Cyber insurers should be aware of the risk exposure arising from the pervasive and interconnected nature of IoT. They need to take a cautious yet proactive approach in addressing IoT risks, with the purpose of securing customer assets while achieving growth. Those that leverage new risk assessment models ensure the security of IoT assets and offer well-defined cyber coverages that stand to gain. Cyber Resilience: Crucial Role in Next-gen Digital Banking Catastrophic Cyberattacks: An Existential Threat for Cyber-Insurance Industry Cyber Insurance Regulations, a Step Forward Against Cyber Threats TCS Cyber Insurance Suite: Underwrite Risks During COVID-19 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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WEF2023: Cooperation can solve our biggest challenges

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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. 3 MINS READ Sapthagiri Chapalapalli Head, Tata Consultancy Services - Europe You have these already downloaded We have sent you a copy of the report to your email again. This year's Davos Annual Meeting comes at a critical moment for a world beset by economic, social, and political challenges. The World Economic Forum is characterizing the current collective global challenges as a "polycrisis" and its theme for this year's annual meeting is Cooperation in a Fragmented World. At Tata Consultancy Services, we have long recognized that solving the world's biggest problems will require cooperation across purpose-led ecosystems. The spirit of the Forum's theme is deeply enshrined in our philosophy of Building on Belief. It's an approach to business that is defined by cooperation. We help our customers to achieve their goals, while ensuring communities and the planet share in the benefits of business success. Digital technology is leading us into a hyperconnected economy where sustainable outcomes will be measured as closely as the bottom line on the company accounts. This demands a fundamental rethink of the way we do business. When it was all about the bottom line, ruthless competition was the name of the game. But business leaders are recognizing that their license to operate now depends on much more than maximizing company profits. Customers and investors are rightly demanding more from us. They expect us to deliver value that is shared with wider society by improving our communities, protecting the planet, and equipping people with the skills to participate in, and benefit from, the new digital economy. The challenges standing in the way of achieving this are enormous and no single company can solve them alone. We have an imperative to pool our talents and resources and collaborate like never before to help create a more equitable world.   One of the key themes of WEF 2023 is the vital role technology and innovation will play in shaping a future in which we create sustainable value. The Forum argues that by harnessing Fourth Industrial Revolution technology such as AI, cloud technologies, machine learning and virtual reality, companies will be optimized for agility and better able to realize the business, social and environmental benefits of stakeholder capitalism. TCS is working in partnership with a diverse range of customers to drive adoption of innovative technology. Our global innovation network hubs, Pace Port™, bring together an ecosystem of partners to help organisations speed up their innovation strategies and transformation journeys. By combining the talents and resources of entrepreneurs, venture capitalists, enterprises and academic institutions, Pace Port™ is forging the kind of cooperation that the

Forum argues is vital for shaping a sustainable future for our world. Those of us in industry today are working at the beginning of the sustainable business transformation. It's going to be a long journey and it's vital that the next generation is equipped with the skills to carry the mission forward. At TCS we're stewarding collaborative partnerships between STEM students and industry to nurture talent and drive innovation. TCS Sustainathon runs events globally, challenging students to turn ideas into viable solutions to real-world sustainability problems facing some of the biggest companies. Taking part in a Sustainathon challenge brings benefits to students and to industry. The students develop valuable insights into the issues facing organizations, aided by experts in their field. In return, corporate leaders benefit from fresh perspectives generated by some of the brightest young minds working their way through higher education.   This kind of cooperation has the potential to deliver benefits for decades to come as the students enter the workforce and build their careers. Leading athletes and high-performing companies share many traits that deliver excellence in performance. Both push themselves further and faster than the competition and digital technology is now a vital tool for improving sporting performance and sustainability. When organizations go beyond more traditional collaborations, the results can be exceptional. TCS has partnered with Jaguar TCS Racing – sharing expertise and technology that is informing the next generation of electric road vehicles. By working together to develop clean transport technology, we are helping to build a more sustainable transport infrastructure. Our partnership with the TCS London Marathon has seen the introduction of new technology that helps runners with training tips and tracking their progress. Collaborating with major sporting events is one-way organizations can bring benefits such as clean tech and better health to wider society.   At a time of global crisis, WEF 2023 presents us with an opportunity to shape the future of the global economy. Technology will be at the heart of this transformation and TCS will be a leading voice at Davos. We'll be engaging with our ecosystems across business, government, and civil society to ensure a future that benefits all and leaves nobody behind. "We have an imperative to pool our talents and resources and collaborate like never before to help create a more equitable world." Sapthagiri Chapalapalli The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Theme Font size Line height
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5 innovations transforming net zero targets into actions

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innovation already in action, or, at the very least, its promise to create real change: More than two-thirds of our global Manufacturing & Utilities clients have declared their carbon neutrality goals. For manufacturers, these pledges are particularly complex, since they often come with implications for long and involved supply chains: ethical sourcing, material circularity and lower product life-cycle emissions, to name a few. To achieve these bold goals, leading companies apply innovative modelling of their operations, using AI and creating digital twins to map and reduce emissions. These technology applications will help companies be sustainable, accountable, and future-ready. On the highways and in the skies, ecosystems lie at the heart of sustainability in the aviation and automotive industries, with all players relying on collaboration and accountability at both industry and organizational levels. Industry leaders are moving towards the circular economy model, where innovations around product life, fuel and energy sourcing and production, resource management and knowledge sharing are key. Digital technologies can also play a key role in helping to implement and accelerate these circular economy principles across downstream ecosystem partners. Industry leaders including P&G, Unilever, 3M, Shell, Dow Chemical, BASF, Lyondellbasel, Toyota, BMW and Rolls Royce are all adopting innovative technologies to incorporate the principle of repair, retrofit, reuse and recycle. For many organizations, the first step is putting a framework in place to measure the carbon footprint of the technologies in use. Building in 'green', or greener software will improve efficiencies across development processes, deployment, usage and maintenance, helping make all aspects of business fit for the future. The utility industry is in the midst of fundamental change. For us, that means ecosystems that are "prosumer-centric," or focused on both producers and consumers. Successful industry players will create and grow an ecosystem with the prosumer at the centre. We see this reshaping taking three phases: the first where utilities encourage and promote the adoption of renewables; the second where prosumers build an ecosystem of distributed energy--for example, solar alongside solar storage--; and the third where prosumers help manage peak load requirements for utilities. An example of this model in action is a leading utility on the US' west coast, which partners with prosumers to create a distributed solar-plus-storage ecosystem to manage peak load demands and meet regulatory requirements. Just one look at the agriculture ecosystem shows how integrated it is in every part of life. No single organization can create a sustainable future alone. We believe that achieving this bold but noble goal requires us to leverage the power of digital technologies and build in sustainability from the start. And we've already seen these ecosystems in action. For example, a large US-based agriculture retailer built a comprehensive carbon program that not only encompassed carbon capture, but also used carbon credits trading to reach its sustainability commitments. By creating a network of growers and suppliers that aligned with its goals, it was able to harness the power of the ecosystem for information gathering and analytics. These examples show how resilience and growth can be fostered if sustainable practices are embraced across the value chain. True sustainability can only be achieved when people, technology, and innovation converge and pull together. At TCS, we believe enterprise will be at the heart of building a more sustainable future. We are proud to partner with leading companies in all sectors to leverage the power of digital technologies to forge a path towards a better future for

people and the planet, and I'm optimistic that the collaboration and big ideas that generate from Davos each year will bring us closer to this goal Addressing these complex and very real challenges can seem insurmountable. In my view, that is exactly why innovation sits at the heart of ultimately solving these challenges Suresh Muthuswami Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Theme Font size Line height

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Why 5G and edge computing are key to retail success

----- Arcticle source ----- https://www.tcs.com/insights/blogs/5g-edge-computing-changing-future-retail-stores ----- Industry Omnichannel CX and Intelligent Innovation – The Future of Retail HIGHLIGHTS On this page A vision of modern retail Drivers for technological change Key considerations for edge Future of retail About the author Read More Blogs 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. E Asharaf Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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 E Asharaf Solution architect, TCS You have these already downloaded We have sent you a copy of the report to your email again. Modern retail stores are designed to enhance customer experience. The retail industry is

transforming rapidly. Modern retailers rely heavily on automation for managing inventory, shelf design, customer service, and logistics. Added to this are video cameras and sensors and help enhance the customer experience. Technology is truly powering the retail transformation, setting modern stores apart from traditional brick-and-mortar ones. Here's how: Processing all the data captured by these video cameras and sensors in real time is imperative for modern retailers. It is no easy feat sending all these video streams and sensor data to the cloud for real-time analysis. High bandwidth is required to move heavy data streams. So is low latency for quick data-processing and decision making, especially when robotics is involved. This is where edge computing and edge-native applications become relevant for retail stores. They allow computing to occur closer to the source of data–right inside the store. Coupled with a private 5G communication network, retailers can deploy cost-effective and high performing 'edge-native' applications. Retailers need a blend of 'latency-tolerant' and 'latency-sensitive' applications to deliver a consistent customer experience. While edge computing is essential for real-time analytics, it has a smaller footprint than cloud computing. For example, theoretically it is possible to use tens of thousands of high-capacity servers for computing on cloud, while edge computing is likely to be limited to a single, high-capacity server. This necessitates a rethink in terms of application deployment and a distributed computing approach. 'Latency-tolerant' parts of applications, such as machine learning (ML) training that require heavy computing, can be moved to the cloud. And 'latency-sensitive' parts of applications, such as a ML-trained model, can be run at the edge. The need to run some parts of an application at the edge and the rest of the same application on the cloud become important here, and a distributed computing architecture can help. A 5G-enabled, edge computing platform can help deliver high performance, ultra-low latency solutions to address the modern needs of retailers. A pre-integrated, edge and cloud capability as part of the edge computing platform also helps in deploying distributed applications to leverage the distributed computing architecture 5G and edge computing have much to offer the retail industry. Retailers can boost the scalability of their services with a combination of ultra-reliable, latency-sensitive edge applications and latency-tolerant cloud applications. They can reimagine their business to deliver a fully automated setup—from store management and inventory management to logistics and supply chain management—that delivers an exceptional customer experience. They will also be in a better position to decide where, when, and how data should be processed. Time now for businesses to get an edge with these powerful technologies and accelerate their transformation to modern retail. TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Role of AI in HRMS Industry Improving content accessibility for people with disabilities Five-point Strategy for Efficient Cloud Operations 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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Know why TCS puts you in charge of your career

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competencies and, therefore, expands the scope of moving internally. My colleague Emese Simahazi-Toth is just one example of how employees can benefit from these programs. Emese joined TCS in 2002 and is now the head of the IT Unit at TCS in Hungary, overseeing 50 client relationships and 500 employees. She was initially hired as a junior Java developer and learned on the job. Additional TCS management training and mentoring helped Emese on a career journey that's seen her thrive. We ensure that a career at TCS is a personalized journey, nurturing each employee and their ambitions individually. The size and global nature of the company help make this a reality. With more than 616,171 associates representing 157 nationalities across 55 countries, the opportunities at TCS are virtually limitless. We ensure that a career at TCS is a personalized journey, nurturing each employee and their ambitions individually. The size and global nature of the company help make this a reality. With more than 616,171 associates representing 157 nationalities across 55 countries, the opportunities at TCS are virtually limitless. Changing career paths is possible, and we encourage associates to switch roles if they want to gain additional skills or pursue new interests. "Nobody stops you," says Irma Metra, an emerging TCS leader based in Milan, Italy. "If you want a change for yourself, you are enabled to move on to what you aspire to." Irma has worked at the company for six years. After starting as a delivery manager for banking, financial services and insurance, she moved into strategic initiatives and now works in business innovation in digital strategy for Pace Port™. TCS has embraced hybrid working. For most employees, a mix of time spent in the office and working from home has become commonplace. Digital technology is vital for keeping colleagues connected, and hybrid offers different ways to collaborate. For example, the TCS Talent Cloud is a relatively new initiative that matches the right people to the right tasks and allows anybody to work from anywhere. The Talent Cloud brings new opportunities for leaders and employees alike. Bespoke teams can be put together quickly, drawing on different skill sets that may not be available in a single location. Now those skills and those who have them are available remotely in the Talent Cloud, which helps bridge borders. For example, in Europe, where there could be cross-country nuances based on legal requirements or taxation. It means employees can utilize their skills to the fullest, opening up more opportunities for them. We embed inclusivity in our culture. From day one of your TCS career, you have a buddy with whom you can talk to candidly about your day-to-day work, what's working, and what isn't. It's not a formal role like a manager, but more a coach – good mentors can also become good friends. Good mentors act as a bridge between employees and the wider organization and have been proven to improve job satisfaction and retention levels. Creating a feeling of being "at home" at TCS is vital for us. Our leaders and managers make great efforts to ensure that everyone feels comfortable and supported when working. It's about sharing experiences and knowledge to help our people on their TCS journey. "I've always been able to – at any level of my career at TCS – I've been really able to learn from the people that manage me," says Jarek Broszkiewicz, Hungary ITIS Delivery Unit Head. Jarek cites his direct line manager as an inspiration, teaching him not only about his role but also about operating in a large organization like TCS. Support is given and supervisors often dedicate their time to provide guidance and mentorship. "All of my supervisors have been able to take time to actually show me the right way and allow me to get used

to the role and be able to mature independently," he says. The ability to change your day-to-day activities, shape your own career and training and be on a path of continuous learning are some of the best parts of a career at TCS. My own time at the company exemplifies this and now my role is about making others aware of the huge range of career possibilities we can offer. We have a great support system in terms of time, talent development and preparing people for new roles. We're investing in new technologies to supercharge our offerings and give our workforce access to the very best digital opportunities of tomorrow. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Theme Font size Line height ======================

Banks need to be adaptable to embrace risks

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In recent years, finance leaders in banking and financial services organizations (BFS) have expanded their role to help steer strategic business initiatives like digital transformation. Risk evaluation too continues to rise in priority for finance leaders. While controls have long been central to the finance function, recent geopolitical and supply chain challenges have highlighted the importance of incorporating broader risk management within financial planning and analysis (FP&A) processes. Volatile business conditions, undesirable as they are, present the opportunity to evaluate and adapt risk and controls processes. From time immemorial, banking and financial services organizations have quintessentially mediated between sources of funds and borrowers for those funds. Implicit to their mediation function, BFS organizations navigate varied forms of financial and non-financial risks to ensure adherence to their obligations and that of their borrowers. To manage these two-sided risks, they put in place sufficient checks, balances and controls within their business ecosystem. And for a long time, these have been sufficient. Now, however, many finance teams within BFS firms require greater flexibility and more robust modeling to better address potential business impacts. According to TCS' Global Financial Leadership Study, there is work to be done to improve adaptability within risk and control functions. The study surveyed 750 CFOs and senior finance leaders from across the globe, with annual revenue of at least $5 billion, to discover how they are transforming financial planning and analysis processes for high-change environments. Banking and financial organizations accounted for 75 (10%) of the total respondents across 14 sectors. Finance leaders have typically used traditional risk measures of inflation, pricing, product mix, labor costs, and perhaps political and economic stability for more remote portions of the globe. The past two years have broadened awareness of risk calculation and forecasting implications. Still, 68% of BFS respondents surveyed report they can consistently identify sources of risk without significant error, just slightly lower than the 71% of total respondents who reported the same. This slight gap widens when it comes to overall risk assessment capabilities—only 43% of BFS organizations report having them to a significant or full extent compared to 54% of total respondents. An infographic illustrating how banks can enhance their risk assessment capabilities. Banks must embrace adaptability, critical skills, risk and control, and data-driven decision-making to enhance their risk assessment capabilities. The likelihood of severity or occurrence of a particular risk and its potential for impact will vary significantly according to business requirements. For example, an upcoming TCS study shows the top three kinds of events with the most negative business impact in the past two years for BFS were: However, these BFS risk officers foresee cybercriminal activity requiring even more of their risk analysis and mitigation attention between now and 2025, relegating more purely economic factors to second place in the pantheon of risks they will be focused on. Nor will risks materialize and proceed exactly as forecast. Multiple scenarios should be considered along with the financial implications of business decisions, with clearly articulated and agreed-upon countermeasures for each response. Excessive rigidity can hinder appropriate responses to shifting conditions. A lack of adaptability is already a source of unease for BFS organizations. TCS' Global Financial Leadership Study revealed that BFS organizations ranked rigid risk evaluation practices

as one of the top three concerns for the FP&A function. In a market that is likely to remain fluid and dynamic, rigidity could leave organizations vulnerable. Rigidity may even hamper organizations' ability to stay on top of the rapidly evolving regulatory environment, as well as to manage evolving demands. As one of the most regulation-driven industries, finance teams within BFS organizations have extensive experience with compliance-based activities. Given the familiarity, it's notable that 59% of FP&A teams within BFS organizations surveyed in TCS' Global Financial Leadership Study say they have the ability to embed preventive controls to a full or significant extent, compared to just 45% of the total respondents. This is an opportunity for enhanced attention and focus, particularly considering that only 44% of BFS organizations report they have the ability to standardize compliance processes to a full or significant extent. Augmenting risk management with applicable controls strengthens organizational defenses and reporting measures, but compliance-based financial activities should complement—not obstruct—strategy-related processes. Mainstreaming risk and control across planning and forecasting activities in BFS organizations will take significant organizational rigor and continued focus. Ideally, evaluating risk and control practices should not be considered a one-time exercise but a perennially recursive endeavor. Acquiring new capabilities may require upskilling of business and technical acumen. Scenario modelling, which is expected to play an increasingly larger role in the finance function, is in the early stages of maturity for BFS firms. Just 43% of BFS respondents report that they have these capabilities to a full or significant extent. Many finance leaders in BFS organizations have already increased their investments in advanced technologies to make existing FP&A processes faster and more agile. In the next 12 months, 73% of BFS firms plan to harness the power of artificial intelligence (AI) and machine learning, while 74% plan to invest in data and analytics technologies. Further, many organizations see an expanded role for shared services functions—whether internal or outsourced—along with their investment in technology. Of the BFS firms surveyed, 41% of BFS firms plan to invest in technologies and competencies for shared services to shore up gaps in FP&A capabilities. Throughout the pandemic, the finance function enhanced its position as a growth enabler and strategic partner to the rest of the organization. Improving risk-assessment capabilities can help ensure that the function is better placed to protect the business. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

2023 retail predictions for the US

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their shopping experience. The importance of sustainably-made, responsibly-sourced items when shopping. Their plans around discretionary spending for the next few months. Most consumers want tech-enabled shopping options Some of the findings around technology-enabled shopping experiences were surprising. Across all genders and five generations—from Gen Z, Millennials, Gen X, Baby Boomers and the Silent Generation or Seniors— all groups (with less interest from Seniors) said they were more likely to shop with retailers offering their preferred technology. For example, an average of 60% of all consumers surveyed say they are more likely to shop with retailers offering contactless checkout options. At 73%, Gen Zers were most likely to shop with retailers offering this technology among all age groups. An illustration showing that most consumers are embracing technology-enabled shopping experiences. An average of 60% of all consumers surveyed say they are more likely to shop with retailers offering contact-less check-outs. The ability to buy a brand's products on an online marketplace was another "table stakes" technology, with well over half of all generations more likely to shop with retailers offering that capability. One of the highest-scoring retail strategies? The ability to get rewarded for making sustainable shopping choices, with 73% of Millennials, closely followed by 71% of Gen Z, saying they are more likely to shop with retailers offering this kind of program. Millennials and Gen Z are most likely to shop with retailers offering rewards for sustainable choices An illustration showing that millennials and Gen Z are the generations that most prefer brands that reward sustainable choices. At 73% and 71% respectively, millennials and Gen Z are way ahead of other generations when it comes to shopping with retailers offering rewards for sustainable choices. The figure is 58% for Gen X, 53% for baby boomers, and 46% for the silent generation. The survey also uncovered that at 70%, Millennials were significantly more open to sharing their personal information in exchange for discounts and perks compared to the other age groups. Sustainability-produced and ethically-sourced products On average, most consumers surveyed say that whether an item is sustainably made or responsibly produced is an important consideration when deciding to buy, with Gen Z and Millennials most interested in making these kinds of purchases. An illustration showing that most consumers are sustainabilty-conscious. As many as 86% of consumers we surveyed in the US say that whether an item is sustainably made or responsibly sourced is important to them when considering a purchase. Perhaps most interesting? An average of 70% of all respondents say they have recently paid more for these kinds of sustainably-made and responsibly-sourced items. So, retailers will want to make sure they educate and communicate any and all corporate sustainability practices to their customers. If not, this is potentially a missed opportunity to build loyalty. Not surprisingly, all generations are tightening their wallets. They are planning to spend less on discretionary items (from beauty and hygiene products to entertainment, home décor, and more). But the survey findings show that Gen X, that group of people dealing with both children and aging parents, plan on spending less on these items in 2023 compared to all other ages. Gen X expects to spend less on discretionary items in the next year compared to other age groups An illustration showing that Gen X is most cautious about spending on discretionary items. 66% of Gen X expects to spend less on discretionary items in 2023 compared with 51% of Gen Z, 48% of millennials, 56% of baby boomers, and 54% of the silent generation.

Retailers need to capitalize on Millennials' open-mindedness to engaging in unique shopping experiences and potentially building stronger, longer relationships. They need to nurture trust with Gen Z and the other generations, each of which have their own unique preferences when it comes to shopping. As consumers tighten their wallets in today's economy, retailers will want to make intelligent investments, building on a holistic growth strategy and relying on data and insights and expertise about the technologies that will bring the best return on investment for the short and long term. The good news is that with the right strategy in place, brands have a chance to turn this period into an opportunity to build loyalty, trust, and even excitement with shoppers. Those who will win are ones who can creatively help their customers make sustainable choices, live up to their values, and ultimately make them feel good about shopping with them. Surprising opportunities await retailers in 2023 despite forecasts of a challenging economic cycle and decreased consumer discretionary spending. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Implementing a comprehensive information protection strategy

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ensure their information is safe and secure, and that all the required controls are in place even as they give their people the freedom to use that information to innovate. Protecting the entire information life cycle is key. Data and document creation typically go through the following stages and it's critical that the information is secured every step of the way: Creation: Label and apply policies based on the purpose, sensitivity, and data criticality when information is first created. Storage: Ensure structured or unstructured information, stored in multiple locations, is discoverable, properly labelled, and has enforceable data loss prevention (DLP) policies. Sharing: Apply the appropriate sensitivity labels and DLP policies with the right level of protection to ensure safe data sharing—both inside and outside the organization. Maintenance: Ensure that there is restricted access to sensitive information. Additionally, only authorized users should be able to make modifications. Archival/destruction: Define processes that follow organizational policies and regulatory requirements around how to properly retire or destroy data. Organizations should have a comprehensive enterprise data protection strategy spanning the entire data life cycle. We recommend a comprehensive strategy that focuses on the following: Ensure enterprise IT and security teams can quickly and efficiently locate data across platforms, on-premises and in the cloud, and from various vendors and sources. Embrace a single comprehensive tool with built-in intelligence that improves information protection while ensuring end-to-end visibility and protection, centralized monitoring, and rapid remediation. Make sure users are proactively educated on data classification, policies, and correct usage. Define accurate taxonomy to ensure protection based on data sensitivity and criticality. Roll out less restrictive policies at the beginning. More stringent protection based on data sensitivity is effective once information protection becomes an integral process. User awareness and the pace of information protection implementation are critical factors. So are monitoring activity and feedback to understand recurring issues. Once you have laid the foundation and taken the first steps to protecting your data, you can gradually bring in more stringent controls. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 AI manages and gleans insights from unstructured data

----- Arcticle source ----- https://www.tcs.com/insights/blogs/unstructure-data-management-using-artificial-intelligence ----- Highlights In this article An AI on insights Different forms of data AI use cases Getting started About the

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these data formats, analyze it, and glean insights that can lead to competitive advantage, business efficiencies, improved customer experiences, and more. Data comes in many forms—structured and unstructured. Let's try to understand the different forms of data. The primary challenge to AI adoption is making it accessible and transparent. Making AI explainable is another important factor to be addressed because otherwise, it's difficult for people to understand how a conclusion has been reached. Companies looking to unlock the potential of data—specifically unstructured data—with AI can focus on an applicable use case and demonstrate how ML or deep learning can solve a problem set. Across industries, many organizations are already doing that. Here's how: Computerized image recognition is guiding autonomous vehicles, identifying structural anomalies in buildings and bridges, and spotting wanted criminals in a crowd. It is also being used to improve safety practices on the shop floor, ensuring employees are alerted to spills or wearing appropriate protective gear. Automated speech recognition systems can achieve better than 95% accuracy in interpreting everyday speech. Once the speech is transcribed—such as from a call-center interaction—text-mining algorithms identify patterns that detect sentiments or yield insights into customer experiences. Companies use these insights to improve their products and ideate new ones. Intelligent data analysis of unstructured data has nearly limitless applications in healthcare. Take Google Cloud's Healthcare Natural Language API and AutoML Entity Extraction for Healthcare. They are used to recognize handwritten doctors' notes and medical records for uses such as detecting adverse drug interactions and enriching medical histories. Text recognition and natural language processing are transforming office-related tasks using scanned images of printed and handwritten documents, as well as emails. This data can then be leveraged to identify patterns among customers employing social media platforms and assist compliance teams analyzing emailed documents. Identifying the right use case and adopting a fail-fast mentality are key. There's no doubt that AI solutions can help IT and business leaders make better, faster, and more-informed decisions from unstructured data to achieve enhanced business value. The key is to get started. That said, experts have some words of advice. "Make sure everybody in the organization has a baseline understanding of AI," Barkley says. "That raises the bar and gets everyone thinking about how it can be applied to interesting and difficult problems." The first thing is to have the right use case with the right stakeholders who have literacy in AI. Also, chances are that some AI projects will fail, so adopt a fail-fast mentality. By doing so, you can move on from initial setbacks, each time gaining nuggets of learning that will help get to success and scale faster. By tapping into the power of unstructured data, organizations will achieve a range of extraordinary results, such as driving shorter time to market, enhancing supply chain, and improving customer insights across industries.   A version of this article was originally published as TCS-sponsored content on CIO.com. Data and AI Services on Google Cloud to fast track data modernization Embracing data-driven retail to enhance customer experiences TCS Recognized as a Leader and a Star Performer in System Integration Capabilities on Google Cloud by Everest Group Unleashing the power of AI 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

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7 ways to super-power intelligent automation

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Yet only a few companies have been able to use automation to truly transform their businesses—to escape the gravitational influence of conventional methods and reach into the stratosphere. The reasons are myriad, and they include insufficient business engagement, poor planning, lack of focus on business outcomes and consumer context, or just not thinking big enough. Intelligent automation, done the right way, provides a lot more opportunities than just "smart" and "fast." Here are seven ways to super-power your automation journey. But be warned—you'll have to leave the familiar behind. 1. Stay focused on clear business outcomes At the most fundamental level, enterprises must clearly articulate their desired outcomes for intelligent automation in terms of improving efficiency, scaling in a non-linear way, accelerating business decisions, or achieving something even more ambitious. They must also focus on the end game. Here, the crucial element is staying on course with a vision locked in on outcomes. This requires a holistic, insights-driven view of all the factors that are tied to outcomes and performance trends benchmarked against best-in-class industry standards.   2. Envision end-to-end automation Most enterprises, due to their risk appetite, implement automation technology one singular joint at a time before moving to the next phase. This piecemeal implementation misses the opportunities that might be provided by intersections across multiple components, and it creates a lack of visibility and cohesion across the value stream. For automation to be truly transformative, enterprises must take an end-to-end approach, ensuring that all automation components are working in continuity. This approach requires adopting an elevated mindset and looking across business silos with a goal of quick, successful process completions. For example, it could mean looking across the entire order to cash (O2C) value chain—covering customer setup, inquiries, order receipt, billing, cash collections, and disputes—and making sure that all automation interventions are systematic, sequential, and cohesive. We worked with one global chemical organization to infuse intelligent automation across the O2C processes. The project led to improved order tracking and the prevention of order failures, which improved on-time order fulfillment from 71% to 93%. 3. Take a data-driven approach Going 100% automation with full force is not feasible. The depth, intensity, and intervention points should be optimized. A successful automation program hinges on a data-driven approach that guides where and how much automation to apply. This type of approach provides a systematic way to assess both automation maturity and the impact of various automation levers on business results. For example, we worked with a major utility player that was spending a significant amount of money on ombudsmen payments due to billing errors. A data-driven approach helped to identify the exact candidates for automation within the billing process, which led to a substantial reduction in errors and the corresponding penalties.   4. Keep in mind the ecosystem play To make the most of automation, businesses must look beyond their own enterprises and find ways to partner with academia, start-ups, and other established businesses. A purpose-led ecosystem acts as a gateway to collaboration across industries and institutions, and allows companies to access research and new use cases. For example, travel companies can chalk out new revenue streams by analyzing behavioral and spending patterns to create customer segments. With that information, they might partner with financial institutions to offer personalized travel loans, credit cards, or currency exchange. 5. Plan

automation for configurability At any point, an enterprise may need to change gears and move from one business model to another, one mode of the supply chain to another, one channel of customer onboarding to another, or one pricing structure to another (for example, premium to "freemium"). Enterprises should build the capability to incorporate modular changes that allow them to adapt to the fast-changing environment while business-as-usual continues. An ecosystem of plug-and-play, modular, and scalable digital solutions will help address these varying needs. For instance, consider how automation might allow a manufacturing company to set up a configurable buying-channel selector—one that provides a quick way of switching the location, vendor, or ingredients being purchased based on changing market conditions. Or imagine how hyper-automation could create real-time business information and financial analysis for news providers. 6. Democratize IA to achieve scale For organizations to gain the most from intelligent automation, they must scale their solutions across the enterprise, allowing contributions from employees within different lines of business who bring varying levels of technical knowledge. For this democratization to be successful, organizations should have a robust framework to assess, prioritize, and track citizen development initiatives. A center of excellence (CoE) dedicated to building and implementing an easy-to-follow low-code no-code (LCNC) technology can help make it easier for people from non-technical teams to use and develop automation solutions. To be successful, the CoE must include people who serve as change navigators, who bring strong contextual knowledge and can coach employees on projects. 7. Plan for perpetual innovation Enterprises must create a model where employees have a persistent desire to experiment with ideas purposefully and develop innovative automation use cases. Adopting a lean start-up approach to automation helps companies to test the waters before remodeling into full-scale transformation. Also, to drive innovation within the organization, there should be a targeted effort to gather innovative solutions combined with enterprise-wide evangelism to spur downstream innovation. Solution prototypes can come from formal research, process improvement initiatives, events such as "ideathons," and through proactive outreach to employees who may have ideas. To create a scalable program, it is crucial to have a well-defined career trajectory and training programs to encourage participation from a large number of employees. The rapidly evolving business and technology landscape has shown us intelligent automation can be a booster that helps companies speed ahead. However, to get there, automation must be embedded in the company's DNA and not patched on as an afterthought. The seven boosters will help enterprises derive purposeful and strategic value from automation. Accelerating digital transformation The six design tenets of future-ready operations AGL TRANSFORMS CUSTOMER EXPERIENCE WITH AI TCS RECOGNIZED AS A LEADER IN INTELLIGENT PROCESS 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 ======================

Smart mobility: Shaping business models of the future

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the Volvo Group to set up EV chargers in its network across the United States and Canada. These unconventional collaborations stand for a lot more than organizations just looking to meet their sustainability goals. Smart mobility disruptions are poised to foster innovative business models and companies like Starbucks and the Pilot Company have realized the importance of entering the evolving ecosystem to drive their own growth story. The ubiquitous need for mobility has always influenced the scale and growth of industries. It is only natural that the rapid disruptions happening in the way people or goods are moved from point to point will fundamentally transform the way these industries operate and innovate. These disruptions, whether connected and autonomous vehicles, zero-emission mobility, or mobility as a service, bring a plethora of opportunities for new-age businesses looking to sustain, diversify, and thrive. For example, the global pandemic laid bare the importance of flexible, agile, and resilient supply chains, built atop the critical need for the optimized movement of goods. Amazon responded to the need by increasing its air fleet. However, not all businesses can build similar operating models that seek to eliminate risk. In this context, connected and autonomous fleets would be a game changer in the way goods are transported, resulting in reduced costs, and increased options for efficient movement. The advantage for businesses in latching onto ecosystems that leverage smart mobility solutions, lies in the scalability of value propositions within the ecosystem. For example, a truck marketplace can offer variable capacity on demand to transport goods, a gig marketplace can address the paucity of drivers in the trucking industry, an edtech ecosystem can bring in niche training models to the gig marketplace, and autonomous freight services can allow for allocation of scarce driver resources to customer-facing and last mile routes, removing them from long-haul routes. Smart mobility disruptions are poised to foster innovative business models. Emergent mobility paradigms offer a lot more than streamlined and optimized supply chains and operations. For one, the charging process for EVs, which will continue to be several times longer than the fueling time for non-EVs, will provide hotels, restaurants, convenience stores, and retail outlets an opportunity to tap into a new customer base with time to kill, and money to spend. While partnerships with charge point operators can help get prospective customers into their premises, collaboration with OEMs can help secure data and consent of customers to cater to their specific preferences and offer them delightful experiences. As vehicles get more connected, the construct of it being an extended living space has become a greater reality. Connected vehicle commerce is estimated to be worth upwards of € 500 billion over the next decade. However, getting customers to effectively purchase goods and services on the move, requires a well-oiled collaboration with providers in retail, travel and tourism, hospitality, logistics and healthcare, implemented through partnerships with fintechs, and delivered through hyper-personalized engagements. The resultant ecosystems will be mutualistic, as all the players in the relationship, especially the end consumer, stands to gain substantially in terms of tangible value and experience. 21st-century neural value chains — Heralding the future of manufacturing Neural plants – The factories of the future The future manufacturing enterprise — Sustainable by design Adopting XR Solutions for Product Innovation & Business Growth Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered

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Accelerating speed to market using Metadata Repository (MDR)

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metadata that defines the trial and ensures that the data is collated in an organized, consistent and accurate manner. But the metadata collected from multiple sources is non-standardized and fragmented, stored in disparate locations and systems that is difficult to track and maintain. To overcome these inconsistencies, regulatory standards, industry-specific standards, and organizational custom standards are defined, such as the Clinical Data Interchange Standards Consortium (CDISC), Study Data Tabulation Model (SDTM), Analysis Data Model (ADaM), Clinical Data Acquisition Standards Harmonization (CDASH), etc. Post adhering to these standards, data is standardized and submitted to the regulatory authorities. However, since the standards are many, maintained separately, and suffer from unsynchronized versioning, their analysis is tedious and time-consuming. A second challenge with metadata standardization is the lack of reusability and governance. Reusability of standards can significantly impact study setup time by referencing the already available information and literature. Also, in the absence of streamlined governance processes, maintaining clinical standards can be difficult as users may deviate from the standard set of steps. Realizing the necessity to accelerate clinical trials leveraging modern technologies, pharma organizations are now veering towards the creation of AI-powered metadata repository (MDR) platforms. However, let us first understand as to how MDR accelerates speed to market in clinical trials. Essentially, MDR provides a one-stop solution to streamline the clinical trial setup process from data collection, generating submission-ready datasets, and facilitating actual submission ensuing faster study setup and increased regulatory compliance. This is enabled through a single, centralized location acting as a single source of truth for storing and accessing information about a trial. Few unique ways in which the MDR accelerates clinical study setup are listed below: Enhanced data management and quality: A major challenge in clinical trial setup is integrating and managing data from multiple sources, such as electronic health records, wearable devices, and patient questionnaires. A metadata repository can help by providing a central location for storing and organizing data from these sources as well as defining standards. By using a metadata repository, sponsors and Contract Research Organizations (CROs) can quickly and efficiently set up their trial and ensure high-quality data availability. Standardized data definitions and terminologies: Data definitions and terminologies need to be standardized across different study sites and teams. A metadata repository can define and store standard terms, codes, and formats that are used across the trial. By using a metadata repository to standardize data definitions and terminologies, organizations can easily ensure that data from different study sites is consistent and comparable, which can help to improve the overall quality and consistency of the data. Standards versioning: Standards versioning helps users to track changes to the study over time, ensuring that all trial stakeholders are working with the most updated standards. This reduces errors and inconsistencies, and ensures the study is conducted according to the recent and most updated protocols and guidelines. Automated SDTM generation: A metadata repository can streamline and automate SDTM generation by storing standard definitions and mapping rules for variables and datasets. During the data processing phase, this information can be used to generate auto SDTM datasets. This significantly reduces the time and resources required to create the submission-ready datasets and the manual errors

incurred during the process. Improved collaboration and communication: Clinical trials often involve complex networks of stakeholders, including sponsors, CROs, regulatory agencies, and study sites. A metadata repository can help facilitate collaboration and communication among these stakeholders by providing a single, centralized location for storing and accessing information about the trial. Metadata reuse: A validated and standardized metadata can be reused in the future for quickly and accurately building a new study. This is possible due to the centralized metadata repository's ability to allow instant search for metadata and standards from the standardized library. This not only enhanced trial quality and consistency but also provisions accelerated study setup. Data integration and analysis: Clinical trials generate large amounts of data that need to be analyzed and interpreted to generate insights. A metadata repository ensures that the data and data definitions are consistent, reduces the errors in analysis, and provides a clear understanding of how data is transformed from source to target using data lineage, thereby making it easier to integrate and analyze the data. Robust governance: An efficient metadata repository enables robust and flexible workflows and smart governance ensuring accurate data lineage essentially providing clear and accurate information about the origin and history of data. This can ensure the accuracy, reliability, and quality of data that can make it easier to design and execute the study. In addition, it can quickly troubleshoot any issues and address them quickly, thereby minimizing delays and disruptions in the study. Leveraging AI: Metadata repository integrated with artificial intelligence (AI) has the potential to accelerate clinical trials by automating various aspects of the trial process, such as data analysis and electronic data capture, using the latest techniques and technologies including predictive analytics and Natural Language Processing (NLP). The direct impact of automation results in reduced time and effort required to complete the tasks manually. Overall, a metadata repository can significantly accelerate clinical study setup by providing a single, unified, and centralized location for storing and organizing trial metadata, and by helping to streamline and standardize metadata management and processes across studies and teams. This can help to improve the efficiency and effectiveness of the clinical study setup process and can ultimately lead to more successful and impactful clinical trials. Rapid Standardization in Clinical Trials New Version of TCS' MRT Platform TCS' Advanced Drug Development Suite Empowering clinical data 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.
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Why businesses turn to NFTs to drive engagement

Highlights In this article Why turn to NFTs? Top of the popularity chart A new wave—experts advise caution What next? Learn how NFTs can benefit you 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. Amit Chemburkar 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. Amit Chemburkar Head, Presales and Marketing You have these already downloaded We have sent you a copy of the report to your email again. Innovation is critical for leading brands to sustain their market positions, and for evolving brands racing to be on the top. In an age of fickle customer loyalty, it is imperative for brands to explore new channels to engage with their customers, fans, and their employees. That brings us to the latest fad—NFTs. NFTs offer a unique channel to deepen engagement with multiple stakeholders in an enterprise's ecosystem. They can be a digital variant of a physical item or a digital item that is either limited edition (one of many) or exclusive (one of a kind); for example, digital versions of a priceless painting such as the Mona Lisa along with a certificate from the Louvre Museum or a trendy digital sneaker from a famous sports brand or an exclusive virtual evening gown from a leading fashion house. As unique entries on the blockchain, NFTs are permanent and immutable, but can be owned and

traded on a marketplace. NFTs are rapidly gaining popularity due to several reasons. In many cases, NFT owners get physical mementos, community membership, privilege passes to events, or exclusive deals, offers, or promotions, which is considered a matter of pride. As fractionalized investments, NFTs make rare and expensive artwork or memorabilia accessible and affordable. NFTs of promising assets such as rising sports personalities and artists appreciate over time and yield significant returns, making them attractive investment options. This is similar to investment in penny stocks that grows multi-fold as the stocks grow and become blue-chip. NFTs also hold significant potential for use cases that do not involve trading, such as credentialing of students by academia and learning institutes for employers and venture capitalists; digital passports authenticating product information such as organically grown raw materials, sustainable manufacturing practices, and reusable or recyclable packaging from manufacturers and retailers; and establishing ownership of assets such as vehicles, property, art, or jewelry. For enterprises, NFTs deepen customer engagement, provide access to previously untapped or under-tapped customer segments, build a brand image and brand recall, and generate new revenue streams from the customers and other stakeholders in the ecosystem. Having said this, NFT technology is fairly recent. Most enterprises are in the early stages of comprehending the potential of NFTs to their industry in general and to their organization in particular. Lawmakers are in the process of framing regulations and policies to prevent fraud and ensure consumer safety. Financial experts are exploring the implications of crypto payments on the economy. Creating a magnetic experience using NFTs requires more than just technology. To keep succeeding at their NFT initiatives, brands need to understand how NFTs can add value to their brand and visualize their NFT journey. A discovery exercise is uniquely designed for this purpose, and covers the following: Education: Creating awareness across stakeholders about what NFTs comprise, possibilities, industry applications, and peer and competitor initiatives. Research: Primary research can be done through surveys, interviews, shadow techniques, and more, and the results would help validate the findings of secondary research—publicly available data. Ideation: Including design thinking workshops with participation across stakeholders to arrive at the use cases that are most relevant to the enterprise. Prioritization: Picking the most beneficial use cases based on the business impact and the feasibility to arrive at the desirable results. Roadmap: Outlining a phase-wise adoption of NFTs across businesses, products, markets, and customer segments. An optional part of the discovery stage is also substantiating the hypotheses through a rapid prototype or a minimum viable product. After the discovery stage and before building the solution, it is important to consider the legal, financial, and regulatory implications in the operating geography. For example, if crypto currency is not a legal tender in certain countries, it is important to identify a third party that accepts payments in fiat currency, converts them into crypto currency, and vice versa. Explicit permissions must be taken from owners of digital and physical assets to avoid intellectual property infringement. Similarly, counterfeits must be detected to prevent fraud and resulting lawsuits. Once these aspects are addressed, it is important to bring together the best creative and marketing talent to create an engaging experience and amplify it through initiatives such as community, extended

reality, rewards, and benefits. It is equally important to select the right technology platform. Out-of-the-box features for content storage, token minting, sale and servicing, custody, and marketplace accelerate time-to-market. A cloud-native, microservices-ready architecture aligns well with an organization's cloud-first strategy. Options for both SaaS and on-prem models provide the flexibility to align and integrate with existing investments. Integration options with visualization tools such as metaverse make the solution future-ready. Last but not the least, instead of doing everything within the enterprise, onboard the right partners and launch your NFT journey today. How data analytics can change crypto investment forever Digital Assets – A New Paradigm in Capital Markets Web3: The future of the internet The new wholesale payments paradigm Theme Font size Line height =====================

Five-point strategy for efficient cloud operations

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news stories from across TCS. Discover our press releases, reports, and company announcements. 3 MINS READ Ashish Vyas Head, Cloud Foundation Strategy and Modernization You have these already downloaded We have sent you a copy of the report to your email again. "Cloud first" is the way to go, and many organizations are quickly catching on to this. And so they are taking a cloud-first strategy to migrate and modernize their IT landscape—to move away from Capex models, reduce technical debt, and gain overall business agility. Beyond these cloud advantages, such an approach allows easy integration with other cloud-native services and offers benefits like availability, scalability, flexibility, security, and cost efficiency. However, migration and modernization aren't enough to guarantee all possible benefits of the cloud. Effective cloud operations are critical for organizations to realize the true value of the cloud. And efficacy is achieved when additional optimization is considered for cloud-based processes and operations covering aspects such as cloud configuration or consumption of cloud resources across infrastructure, platform, and software layers. From a cloud operations standpoint, it is important to consider key components such as compute, storage, network, and security during the initial "design and build" stage and define the "operations" stage to address the aspects of ongoing provisioning, deploying, operating, monitoring, and managing the cloud environment. Let's take a look at five things enterprises need to focus on for efficient cloud operations. A proven success mantra based on our work with customers worldwide A strategy for continuous optimization and sustainable growth When you have the right strategy for cloud operations in place, here's what you stand to gain: Accelerated cloud journey: Automation and AI and ML-enabled platform and accelerators enable efficient, accurate, and cost-managed CloudOps. Improved service delivery: A clear cloud operations strategy defines proactive monitoring, catalog-based provisioning, analytical reports generation, quality assurance tests that need to be performed, and cost governance—all of which boost productivity and lead to cloud operations efficiency. Continuous optimization: Ongoing improvement of cloud operations practices and best practices for cloud operations tasks such as automated provisioning, request handling, monitoring, and scaling enable uninterrupted availability of the environments that run on cloud platforms. An efficient CloudOps strategy guarantees a smoother cloud adoption journey With multi-cloud hybrid environments driving IT operation demands, enterprises are seeking seamless service delivery methods that address day-to-day activities to manage their cloud environments. You can optimize the use of the cloud through effective deployment and management of cloud environments. It also helps improve the ability to experiment and innovate with new technologies and explore new services. The five-point strategy for efficient cloud operations will enable enterprises to adopt the right practices to effectively govern and run cloud-based environments and better realize the benefits of their cloud adoption journey. TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Role of AI in HRMS Industry Improving content accessibility for people with disabilities Realize the promise of GenAI-powered digital workplaces 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

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Curb range proliferation to thrive amid inflation

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suppliers, buyers, and merchandising teams, this creates significant challenges. It often leads to a protracted negotiation, with the supplier demanding higher costs, and retailers fending off the requests with counter arguments around the intrinsic value of an item versus the cost being levied. This is especially true when the item is not just a simple commodity, with the value of the raw material for all to see, but also has brand equity baked into the cost of goods, hidden within the proverbial 'black box' of suppliers' recommended retail price. The retail price—legally only for the retailer to set—is an enormous driver of margins. Accepting a cost increase and raising the price for the consumer balances the books, but no retailer wants to lead that charge. Although with the current disparity on price, some appear to have been forced to do so, negatively impacting their price positions.   With these challenges in mind, all too often, the standoff can result in the supply stopping—either through the retailer delisting swathes of a brand's products as leverage, or the brand stopping the supply to the retailer to the same end. Neither of these scenarios has a positive outcome for retailers, suppliers, or customers, except perhaps getting to the lowest possible price increase. Changing dynamics in negotiations can lead to a product range being used as a strategic lever. The other dynamic that has replaced this type of protracted negotiation is a twist in the traditional 'if you, then we' kind of tactic. This, in practice, manifests itself as a supplier using the available breadth of range as leverage. Buying teams are presented with the option of taking additional range and distribution points in exchange for better cost prices. Post GSCOP (Grocery Supply Code of Practice) in the UK, listing fees are no longer an option to generate revenue, but range proliferation continues. On the surface, this can seem straightforward and avoid what could be an awkward negotiation, making everyone happy, right? Well, possibly, but it really depends on how aggressive this approach is, how important the new products are, and how they offer differentiation and value for the consumer.   The pressure of growing assortments has been addressed by some retailers but remains a significant challenge for others. A few retailers have made significant efforts in recent years to reduce assortments to a great extent in some areas. Others have not begun to address the challenge and perpetually rotate a tail of range and maintain a bloated assortment without any overall optimization. This creates continuous work and adds to the cost overall. The 80/20 rule applies well here with 20% of the range often driving 80% of sales and margin revenue. The skill required is not just in simply identifying the cash and margin drivers, but also products that are most important to customers. This, in turn, will help identify the true tail of the range to confidently remove it. The space thus freed up can be used for true differentiation and uniqueness. A shop's walls and fixtures are not 'elastic' and an increase in range over time has significant downstream impact on multiple business KPIs, negating any margin savings and often making things worse in the long run. Availability of key lines, which hovers over 95% at best retailers but can be as low as 70% at others, can suffer as products receive less space. Distribution centers struggle to accommodate the additional picking slots, slowing down operations and increasing costs. Inventory levels can rise, consuming working capital. Replenishment costs increase through handling of additional products. Crucially, customer perception of range is negatively impacted, with too many variants of similar products, making it hard to determine value and make informed choices.   Changing the dynamics of a

negotiation takes planning and an enormous amount of data with sophisticated modeling to proceed with confidence. Controlling this is not easy as there is a need to negotiate hard on cost, and often, there are very few alternatives to closing a deal. However, the answer can be found in optimizing assortments and reducing the range to a level that offers both choice and value without confusing customers. The solution lies in changing the dynamic by reducing the levels of duplication and ensuring value is derived from the remaining assortment. When the assortment is optimized, the fastest selling products should be given more space in stores. Although fewer products are listed, shelf presence for brands is often increased (a brand KPI and objective). Although this space cannot be sold to a supplier, it can be used for mutual benefit through a relationship of partnership and trust. The key is assortment and space optimization that drives truly store-specific ranges. This cannot be achieved through traditional models and requires a sophisticated approach by using tools that leverage artificial intelligence and machine learning to ensure all available data is considered above pure performance, including customer importance, substitutability, and uniqueness. Within these broad headings, there are countless nuances to be considered, including economic demographics, ethnicity, location, and customer mission. Achieving all of this within the confines of a store's footprint, without missing key need states, and keeping products on sale on the busiest of days, while keeping labor models lean, is a challenge beyond the capability of traditional and manual processes. Only the most sophisticated of models can cater to all the parameters and provide an output that is operationally actionable.   Finally, the accompanying governance and critical path processes to deliver these changes are more important than ever. Breaking down traditional business silos and taking a data-led approach throughout the range change program will help realize value at every stage in the product lifecycle.   The 80/20 rule applies for assortments as well—20% of the range often drives 80% of sales. Retailers who apply this golden rule can better align products with customer demand and increase margins. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 ====================

DeFi: A disruptor in capital markets

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Achieve Success in the Digital Era Bringing Together IoT and Digital Engineering to Create Rich Experiences Data and Cybersecurity to Fight off Cyberattacks Highlights In this article Introduction What is DeFi? Applications of DeFi Regulatory concerns over DeFi The future of DeFi 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? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Anand Chidambaram 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. Anand Chidambaram Technology Lead, Capital Markets, BFSI You have these already downloaded We have sent you a copy of the report to your email again. Globally, capital markets have transformed considerably over the last decade. The change is thanks to the introduction of new instruments and shifts in investor preferences and demographics. The concept of decentralized finance (DeFi), and by extension, digital technologies, have played a crucial role in this transformation. They have made access less exclusionary for retail investors to participate, leading to democratization in the industry. In capital markets, democratization happens when centralized institutions are replaced by peer-to-peer relationships allowing more investors to participate in the market. With DeFi, intermediaries define the rules and conditions that provide access to investors. Through disintermediation, investors can find new investment avenues in private markets. The democratization of capital markets has the potential to accelerate wealth creation globally and is unlikely to be disrupted due to uncertainties. DeFi is built on the confluence of distributed ledger technology (DLT) and various financial products such as derivatives, asset-based securities, and lending. It is also developed based on the foundations of cryptoassets and stablecoins. For example, investors can invest in cryptoassets in real time through automated exchanges to

match them with counterparties. With DeFi, borrowing and lending in digital assets occur more efficiently, as the blockchain-based mechanism and central bank digital currency (CBDC) or stablecoins enhance trading transparency. With extended access, investors can participate in peer-to-peer transactions without the need for regulatory authorities like market infrastructure entities. DeFi provides a platform for entities requiring long-term capital and investors who are keen to explore modern assets. Despite the promise DeFi presents for investors, there are still some challenges that prevent it from becoming a more mainstream investment avenue. The total value of assets in DeFi contracts also referred to as total value locked (TVL), dropped by 85% from $303 billion to around $50 billion in January 2023. This decrease was attributed to investor concerns on liquidity, transparency, and regulatory oversight. DeFi can disrupt traditional financial structures. It is relevant in a variety of capital markets uses cases, as mentioned below: Decentralized exchange (DEX) DEX provides a marketplace for peer-to-peer transactions between cryptotraders, where there is no intermediary involved. In 2021 alone, DEXs executed more than $1 trillion in trading volumes. DEXs use smart contracts as trading algorithms and liquidity pools – instead of order books – to which investors provide assets. DEX can exist in various forms as on-chain order books or off-chain order books, automated market makers (AMMs), or DEX aggregators. The DEX provides various benefits for trading since it requires no know-your-customer (KYC), no counterparty risk, simplified processes, and low-security risks. The trading volume in DEX has fallen relatively to centralized exchanges (CEX). However, the fall is temporary due to recent market events, and volumes are expected to increase. Some leading DEXs are dYdX, Kine Protocol, and DODO (Ethereum). Lending Borrowing and lending in the DeFi age will enable better efficiency, access, and transparency as compared to centralized finance (CeFi). Some of the top DeFi lending platforms are Aave, MakerDAO, and Compound. Asset tokenization DeFi enables tokenization of financial securities issued against underlying assets. Issuer companies can dematerialize assets through digital securities in DeFi, and investors can invest through digital subscriptions. Further, DeFi enables compliance for all securities and accelerated investor onboarding, allowing issuers better control over the issued securities. Investors can manage their investments through crypto custody services. Here, digitalization can improve accessibility for new investors looking to invest in newer asset classes. It also expands the market for issuers. NASDEX is a DEX for trading tokenized equities on the blockchain and is designed to serve as a bridge between the crypto and equity worlds. Tokenized derivatives Crypto derivatives and other decentralized derivatives offer better risk management to investors through hedging and generate returns without the need for investment in the underlying asset. The value of DeFi derivatives is linked to cryptocurrency markets or to the value of Fiat or commodities. Other traditional DeFi derivatives leverage the use of smart contracts. Asset management In DeFi, users have more control over their assets, as it provides tools for buying, selling, and transferring their digital assets at their own will. Investors are the custodians of their crypto funds. DeFi apps like MetaMask offer secured storage of encrypted passwords and private keys locally under the control of the investor. Regulators such as the US Securities and Exchange Commission (SEC) consider DeFi as a platform with multiple opportunities. The products and offerings on a DeFi platform are similar to traditional

financial securities. However, authorities are concerned about the platform's unregulated nature, as it poses critical risks and challenges for regulators, investors, and the financial markets. Another concern of regulators such as the SEC around DeFi is the returns asymmetry between sophisticated and retail investors and the anonymous nature of transactions. Such can lead to price manipulation. Thus, it becomes imperative for stakeholders in the DeFi space to answer the following questions: DeFi is touted to become the platform of choice for investors and issuers in the near future. However, sufficient regulations need to be put in place. It is crucial to note that it is still in its infancy, and there have been several failed experiments, with impediments such as KYC and regulatory compliance. The recent collapse of the CeFi platform will create more opportunities since customers prefer platforms with better control and transparency. With its reduced risk, DeFi will inevitably grow, making it mainstream in the next few years. Central Bank Digital Currency: Implications on Commercial Banks Moving toward a cashless society with crypto payments Digital Assets – A New Paradigm in Capital Markets Blockchain in Capital Markets: Making Inroads One Click at a Time Theme Font size Line height =====================

How CBDCs will enhance capital market transactions

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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. Sathish Narayanan Business Analyst, BFSI You have these already downloaded We have sent you a copy of the report to your email again. Imagine a world without long wait times or hefty intermediary fees for international fund transfers. Or purchasing treasury bonds within a few seconds instead of trade date plus two days. These scenarios could come true with the advent of central bank digital currencies (CBDCs). They are expected to simplify and disrupt payment and settlement solutions. The currencies will prove especially useful for cross-border and interbank transactions. Central banks across the globe are witnessing a decrease in the use of paper currency. At the same time, cybersecurity threats related to digital payments and financial risks posed by unregulated digital currencies such as cryptocurrencies are on the rise. Central banks are striving to shield the global financial system from these risks. They are now exploring ways to issue a digital legal tender of their currencies in the form of CBDCs. Several pilots have been conducted to evaluate the technical infrastructure, performance, and user feedback of these currencies. Some prominent pilots include those announced by the People's Bank of China, the US Federal Reserve, and the Bank of England. CBDCs can empower investors with access to a wide range of investment assets. They can decrease transaction and settlement costs and reduce dependency on intermediaries. Issuers can reach a larger pool of potential investors across the globe due to hassle-free, faster, and secure transaction methods. Further, they have an edge over other modes such as India's Unified Payments Interface (UPI) and e-wallets in terms of disintermediation and safety features that are backed by central banks. Here are some potential use cases. Implementing CBDCs will not be easy. We foresee three key challenges: CBDCs have significant potential to disrupt payments and settlement solutions in capital markets. They can lower costs for all stakeholders and facilitate inflow of more retail investors to markets across the globe. However, the implementation of CBDCs will have to pass through several impediments related to regulatory measures, acceptance from market participants, and user privacy. These issues can be ironed out through global partnerships and common implementation frameworks among central banks. Capital market firms and banks would do well to chart out their CBDC adoption strategy in the near future. Central Bank Digital Currency: Implications on Commercial Banks ESG Investing & the Role of Technology in Overcoming Data Challenges Digital Assets – A New Paradigm in Capital Markets Blockchain in Capital Markets: Making Inroads One Click at a Time Theme Font size Line height ======================

Two steps to effective cloud operations

----- Arcticle source ----- https://www.tcs.com/insights/blogs/effective-cloud-operations-with-two-pronged-approach ----- Service TCS and Microsoft Cloud: Driving Business Transformation Highlights In this article Welcome, cloud operations Ensuring site reliability Simplifying cloud operations Conclusion About the author Read More Blogs 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. Ganesh Sivakumar Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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 Ganesh Sivakumar Platform Architect You have these already downloaded We have sent you a copy of the report to your email again. Make your cloud infrastructure and applications more reliable with site reliability engineering (SRE). Many enterprises have embarked on the cloud journey and moved their workloads to public or hybrid cloud. As they migrate their business applications to the cloud, enterprises are also exploring how traditional operations teams that monitor IT infrastructure can be utilized to improve end-user experience and infrastructure life-cycle management. They are also realizing that effective coordination between developers, test engineers, and security teams is a must for better problem resolution. So, what can be done to ensure all this and get maximum value from cloud operations? SRE, a new operating model that uses software engineering principles to optimize the reliability of applications and infrastructure, is key. The SRE team can also collaborate with DevOps,

ITOps, and development teams; and reduce friction between these teams to improve the reliability of an IT environment. SRE supports cloud operations to maintain the performance and quality of services provided to end users. From automating cloud operations to building self-service tools for auto provisioning of cloud resources, SRE helps in running an efficient cloud environment. With faster trouble shooting and automated resolution of repetitive service requests and incidents, it saves time for developers to focus on development-related activities. Companies adopting this new operating model are improving resiliency and time-to-market by 20% or more. By leveraging SRE in their cloud operations, enterprises can boost infrastructure security and reduce application failures by ensuring highly available and scalable infrastructure. That's not all. They can monitor application performance, apply quick fixes to eliminate performance bottlenecks, and enable faster recovery of services. Leverage artificial intelligence in IT operations (AIOps) to identify and solve issues in cloud operations. Cloud's distributed architecture and increasing complexity make it a herculean task for the operations team to achieve service reliability with specific SLAs. Simplifying cloud operations with AIOps can make all the difference. Here's how: AIOps reduce manual efforts and identifies, analyzes, and remediates events or issues in cloud environments faster. With AIOps predictions, the cloud operations team can proactively monitor and take preventive actions to avoid incidents or alerts. They can make the most of AIOps predictions for cost optimization and insights into cost-saving opportunities. With its automation and machine learning capabilities, AIOps helps reduce human errors. AIOps collects distributed data into a common platform to perform analysis and provide insights and improves the time taken for root cause analysis through event correlation. What's more, AIOps enables observability with dashboard-based performance analysis. Observability is the ability to measure the current state of a system based on the data it generates such as logs, metrics, and traces. By leveraging AIOps, enterprises can achieve improved observability on its applications, remediating problems faster and increasing reliability. Another area where AIOps helps is in optimizing costs. It does so by reducing human interventions through automation and repetitive issues and automation of anomaly detection and root cause analysis. And using insights from analysis of utilization metrics, it also plays a major role in measuring the performance of cloud resources and recommending right-sizing of resources to reduce costs. Elevating the maturity of cloud operations AIOps improves the efficiency and agility of support and SRE teams by making continuous improvements in cloud operations. By adopting SRE and AIOps, enterprises can become future ready, achieve their goals, and elevate the maturity of cloud operations. Enterprises can also leverage cloud platforms such as like TCS Cloud Exponence, which is specifically designed for future-ready cloud operations. It also provides services of expert service reliability engineers and self-service catalogs for provisioning of resources, and AIOps for intelligent analysis and reporting on cloud operations. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 digital assessment in education is here to stay

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security against what was feasible and fair. Several universities that already had long-term digital assessment strategies were able to accelerate their digital assessment journeys due to the rapid development of scaled-up technology platforms Digitising assessments is the first step in a new strategy to rethink the function of evaluations. Many of the institutions Tata Consultancy Services (TCS) works with have already begun permanently digitising student assessments as the first step toward making long-term strategic decisions and changes. Educational institutions can now spend less time preparing for, observing, and monitoring traditional in-person exams because of the flexible alternatives offered by digital assessments. By freeing up time spent on manual duties, many new platforms enable teachers and professors to focus on the difficulties of analysing open-ended responses and creating unique and creative learning possibilities and solutions. Assessments are a crucial part of the education process and can help drive improvement, shape behaviours, and demonstrate accountability. A digital assessment approach better reflects how most students now complete productive work and provides a platform for delivering a boundaryless assessment experience. With multiple authentication and encryption mechanisms built into the data and content security infrastructure, digital assessment solutions pre-empt any security breach and only allow authorised access. The educational process must encourage students to develop independent and self-directed learning skills by moving away from scheduled examinations and toward ongoing, personalised evaluations enabled by digital assessment tools. This strategy also opens up the possibility of using analytics, allowing students and professors to analyse their data and gain access to various tools that aid their research, thereby improving the management of the teaching and evaluation process. Educational institutions can now spend less time preparing for, observing, and monitoring traditional in-person exams because of the flexible alternatives offered by digital assessments. With the shift to digital assessment and the broader digital transformation of higher education services, there is an increasing demand for authentic evaluation processes. As a result, it is critical to ensure that digital assessment methods provide an accurate and appropriate alternative to standardised testing, as well as the ability to evaluate and reflect the skills required in the future professional lives of students. The growing demand for accurate assessment will enable universities to move to the next stage of digital transformation. Digital transformation was initially a practical issue for many educational institutions. However, it quickly became more widespread and comprehensive, radically changing student evaluation and ensuring it reflects real-world skills. Furthermore, an assessment platform must be open to all. The ability to accommodate the various needs of differently abled students will differentiate good assessments from bad. Another critical aspect of digital assessment is the data and insights it can provide to teachers and students. Providing specific insights to teachers and learners on progress, gaps, and target areas of improvement can help students and teachers stay on track to achieve the best learning outcomes. While in-person exams may continue, they are unlikely to be the primary method of evaluation. In the digital age, educational institutions must use digitised learning solutions and platforms to remain competitive, streamline and expand the quality and flexibility of the assessment process, and create sustainable, unbiased, and fair educational solutions. The Role of AI in

HRMS Industry Cybersecurity: The new frontier in the digital age
Transforming Space Tech Operations Using STAR and ORBIT Frameworks
Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life
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2023 retail predictions for the UK

----- Arccticle source ----- https://www.tcs.com/insights/blogs/retail-consumer-behavior-predictions-2023 ----- Industry Omnichannel CX and Intelligent Innovation – The Future of Retail Highlights In this article TCS Retail Survey: Top Takeaways for the UK Tech-savvy shoppers Privacy vs perks Sustainable choices Discretionary spending About the author 2023 retail predictions for the US 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. Shekar Krishnan Read more blogs Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Shekar Krishnan Vice President and Head of Retail and CPG You have these already downloaded We have sent you a copy of the report to your email again. With evolving consumer expectations and preferences in how they shop and buy, anticipating what lies ahead in 2023 can be a bit tricky for retailers. Other factors—such as inflation, lingering supply chain challenges, and geo-political events—can further complicate any kind of industry forecast. The TCS Retail Consumer Survey offers some data-derived insights to help retailers in the United Kingdom (UK) to successfully compete in 2023. The UK is set to enter recession this year, but it will be shorter and less severe than previously

thought, according to the Bank of England. The forecast comes as interest rates were raised to 4% from 3.5%, their highest level in over 14 years. Inflation remains close to its highest level for 40 years—more than five times what it should be—according to this report. The question then becomes: With escalating cost of living and lower growth margins, how can retailers create a growth strategy that positions their business to thrive and gain a competitive advantage? Consumers want technology-enhanced experiences. The research shows an emerging generational divide—and similarities—on digital shopping experiences, sustainable product choices, payment options, and data privacy as retail businesses look to uncover new opportunities and increase revenue while navigating an increasingly complex economic environment. Some of the findings around technology-enabled shopping experiences were surprising. Across all genders and five generations—from Gen Z, Millennials, Gen X, Baby Boomers and the Silent Generation or "Seniors"—on average, at least half of the respondents in all groups (with less interest from Seniors) said they were more likely to shop with retailers who offered their preferred technology. Across the board, compared to the other age groups, Millennials showed the most interest and were more likely to shop with retailers offering technology-enabled customer experiences, like livestreaming, contactless checkouts, virtualization (shopping in the metaverse, for example), cryptocurrency payment options, the ability to buy on a brand-owned mobile app and online marketplaces. The findings, however, also remind us not to neglect Senior shoppers who are increasingly comfortable with technology. Millennials are more open to sharing personal data Among the key findings is that amid the worsening economy, Millennials, the largest consumer group with the most buying power, are also the most willing (at 76%) to share personal data in exchange for discounts, perks, and other shopping benefits compared to other generations. A chart showing that compared to other generations, millennials are most willing to trade off personal data in exchange for discounts, perks, and other shopping benefits. As many as 76% of millennials are willing to share their personal information in return for such benefits compared with 60% of Gen Z, 54% of Gen X, 34% of baby boomers, and 25% of the silent generation. By contrast, Gen Z (aged 18-25 years and the youngest generation surveyed) is more privacy-conscious, with about 60% willing to trade their personal information for benefits. This number continues to decline across all age groups all the way to the Silent Generation, who at 25% are the most reluctant to share their personal information. These results highlight an opportunity for retailers to capitalize on Millennials' willingness to share data by providing personalized shopping options that reward those customers for doing so. The insights from the survey also suggest this is an opportunity to build greater trust with the other age groups, who are more protective of their personal data. Retailers can do this by giving them greater confidence that their data is safe and secure, and by collecting only the personal data needed to make shopping easy and friction-free. Consumers are increasingly becoming sustainability-conscious. The survey findings reflect this, with an average of 88% of all respondents saying whether a product is made sustainably or sourced responsibly is important when considering a purchase. An illustration showing that most consumers are sustainabilty-conscious. As many as 88% of consumers say that whether an item is sustainably made or responsibly sourced is important to them when considering a purchase. Conversely,

only an average of 62% of consumers surveyed are putting their money where their mouth is—so to speak—and have recently spent more on responsibly-sourced and environmentally-friendly products. An illustration showing that people are willing to pay more for greener products. As many as 62% of all consumers say they have actually paid more for sustainably made, responsibly sourced, and environment-friendly products.   At 71%, Gen Z has been most willing to pay more for sustainably-produced and ethically-sourced items in the past six months. An illustration showing that compared to other generations, Gen Z is most willing to pay more for sustainably produced items. As many as 71% of Gen Z are willing to pay more for such items compared with 64% of millennials, 56% of Gen X, 56% of baby boomers, and 49% of the silent generation.   However, an average of 68% of all consumers surveyed—and (as shown below) a striking 79% of Millennials—are more likely to consider shopping and spending more with a particular retailer offering rewards for making sustainable choices. An illustration showing that millennials want to do business with brands that show their support for sustainability. 79% of millennials are most willing to shop with retailers offering rewards for sustainable choices compared with 67% of Gen Z, 68% of Gen X, 59% of baby boomers, and 49% of the silent generation.   Cutting down on discretionary items Not surprisingly, all generations are planning to spend less on discretionary items (from beauty and hygiene products to entertainment to home décor). But the survey findings show that Gen X, that group of people dealing with both children and aging parents, plan on spending less on these items in 2023 compared to all other ages. An illustration showing that Gen X is most cautious about spending on discretionary items. 69% of Gen X expects to spend less on discretionary items in 2023 compared with 59% of Gen Z, 64% of millennials, 57% of baby boomers, and 38% of the silent generation. Retailers with expertise in analytics who can utilize personal and behavioral data will be better positioned to effectively target different age groups and best navigate the complex segmentation and marketing required for a diverse customer base going forward. By focusing on Millennial buying power with tailored products, messaging and offers in the short and medium-term, retailers can earn added loyalty and maximize a critical customer segment for years to come. But they must also rethink their larger marketing strategies, especially online and on social media, to build trust with Gen Z, whose buying power is rapidly rising, and with Gen X, who prefers to find products in-store, online and via TV advertising. This way, businesses can increase revenue while helping to lead the future of intelligent, sustainable, omnichannel retail and deliver the memorable customer experiences shoppers want today and tomorrow. Surprising opportunities await retailers in 2023 despite forecasts of a challenging economic cycle and decreased consumer discretionary spending. TCS Retail Consumer Survey: Predicting What's to Come in 2023 Leveraging AI in Retail for Assortment Optimization Central bank digital currency: Exploring new forms of legal tender Two-pronged Approach for Effective Cloud Operations 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

Lessons from Data Privacy Day 2023

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about protecting others' information, it's also about protecting your own. Make sure you understand the ways to safeguard your personal information, such as using strong passwords, avoiding public Wi-Fi, and being cautious of phishing scams. Employees should be aware of what information is confidential and understand their obligation to keep it as such. This includes information about clients, customers, and fellow employees. In addition to the importance of maintaining confidentiality, ethical behavior, such as acting with integrity and transparency, is a crucial element of data privacy. Confidentiality and ethics are just as important to data privacy as are technical considerations, and all should be equally prioritized when dealing with personal information. Training and updates Regular training and education on privacy and security best practices is critical to ensure that you are equipped to protect sensitive information. Make sure you take advantage of any training opportunities offered. And the world of data privacy is constantly evolving, so it's important for employees to stay updated about any changes to privacy laws and regulations. Make sure you are aware of the latest developments in data privacy to ensure you are doing your part in protecting sensitive information. Technology has changed the way we collect, store, and process personal information, making it more important than ever for employees to understand the technology used at their workplace and how to protect sensitive information within that technology. Employees should be aware of what information is confidential and understand their obligation to keep it as such. This includes information about clients, customers, and fellow employees. Regular data audits can help identify weaknesses in data privacy and security practices and allow you to make necessary improvements. Make sure you are familiar with the audit process and understand how to use audits to assess and rectify privacy and security risks in your projects. In the event of a data breach, it's essential for you to know how to report it and what steps to take to prevent further damage. Make sure you understand your company's procedures for reporting breaches, including whom to contact. Data Privacy Day serves as a reminder of the critical role employees play in safeguarding sensitive information and promoting a culture of privacy. You can help secure personal information by being aware of your responsibilities, prioritizing confidentiality and ethics, staying educated and up to date on the latest developments, understanding the technology used, participating in data audits, and understanding what do to in the event of a data breach. Non-compliance with privacy laws and regulations can have profound consequences, not just for the company but also for employees. Make sure you understand the legal implications of mishandling personal information and the importance of complying with privacy laws and regulations. While this article refers to learnings from Canadian events, the information is applicable to other locations as well. Although the specific laws and regulations may differ between countries, the need to protect and maintain the privacy of sensitive data is universal. TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Role of AI in HRMS Industry Improving content accessibility for people with disabilities Five-point Strategy for Efficient Cloud Operations Theme Font size Line height
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The importance of accelerated innovation in enterprises

Industry TCS Pace™: Speedier Digital Transformation & Innovation in Business Highlights In this article Accepting emerging technologies How timely innovation proved profitable Impact of accelerated innovation The blind side Let us help you with growth strategies. 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. Nisha Chandran C 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. Adopting emerging technologies can help businesses gain a competitive advantage in the market. Nisha Chandran C Associate Consultant You have these already downloaded We have sent you a copy of the report to your email again.   A steady marketing strategy may work for a long duration, but if companies do not innovate to grow, they may lose out. Let's take the telecom industry, for instance. Several cell phone and smartphone companies that were bestsellers in the previous decade experienced a downward trend in sales as a result of not adopting new technologies. While one popular company refrained from upgrading to avoid risks, another maintained focus on core services and lacked innovative products. On the other hand, companies that innovated and rolled out new products with advanced platforms and features stayed afloat and grew in the market. These instances show that even leading brands may not be able to keep up with competitors if they don't innovate in

a changing world. And hence, the need for accelerated innovation arises—it reduces the time taken to bring innovative products and services to the market.   The need for accelerated innovation stems from market conditions and trends, and emerging technologies. For instance, some brands survived the COVID-19 pandemic by implementing innovative ideas that turned challenges into opportunities. A popular transportation aggregator app's quick action helped expand its services to include delivery of groceries directly from retailers and door-to-door deliveries of care packages, household supplies, and other items. Such innovations arise from the needs and situations of the people. It is crucial to understand one's surroundings, which can lead to an innovative idea that could also help overtake competitors. Without including delivery services, the cab aggregator app may not have been able to come out of the pandemic unscathed, as people were unable to travel during the multiple lockdowns. Many other firms deviated from their usual businesses or products and adapted to the situation by manufacturing and/or selling masks, hand sanitizers, and medical swabs. The remarkable achievements they made can be attributed to timely decisions of transforming their businesses to an area of heavy public need and demand. Another example of a business that boomed and made profits during the pandemic was streaming services and OTT platforms, as theatres, multiplexes, and other entertainment facilities were closed. The number of OTT platforms available also increased since 2020. Research and studies on accelerated innovation have been increasing over the past few years. Researchers have been focusing on the benefits and challenges associated with accelerated innovation, the strategies and tactics used to accomplish it, and the use of new technologies to support accelerated innovation. The research also includes studies on the impact of timely innovation on the performance of organizations and their successful strategies. These studies say that accelerated innovation can help organizations reduce time-to-market and increase revenue and profitability. However, like most things, this phenomenon has another side to it. Though innovations bring profit, credibility, and new business, it sometimes leads to a greater waste of resources, thereby causing environmental damages. It can also cause erosion of privacy alongside excessive monitoring by government and industry. Advances in automation mean an increasing number of complex tasks and operations are being outsourced to computers and algorithms, which have hidden biases, leading to humans losing their capabilities as well as their grasp on the process. For example, AI algorithms are problematic if they are trained on existing datasets that reflect biases in society. A recently trending AI tool can even crack exams and do students' homework. Adhering to safety controls and quality measures are also as vital as implementing fruitful ideas. Ethical ways of innovating increases people's trust in the brand and that would help with sales as well. It is clear that without accelerated innovation, businesses and industries may become stagnant and could be unable to progress in step with the ever-changing needs of the world. It could lead to a drop in productivity and profitability, as well as a decrease in customer satisfaction. In today's world, new technologies, products, and services are emerging every day, and companies need to keep up with the latest trends and advancements to stay competitive. Measure enterprise innovation maturity TCS COIN™ Podcast: Discussing Data Management and Business Intelligence How digital factory is helping Takeda deliver business outcomes TCS COIN™ podcast: The next

Is metaverse the final frontier for insurance sector?

----- Arcticle source ----- https://www.tcs.com/insights/blogs/metaverse-insurance-customer-engagement ----- Industry Reinventing the Insurance Industry with a Digital-first Strategy Highlights In this article Introduction Engage customers Enhance insurance operations Enrich customer experience The road ahead 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? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Subha Veluchamy 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. Subha Veluchamy Domain Consultant (Insurance), NGM-APAC You have these already downloaded We have sent you a copy of the report to your email again. The metaverse market is attracting billions of dollars in investments, with reports estimating it to be worth $5 trillion by 2030. Among the consumers, growing connectivity and demographic tailwinds are the key drivers of growth. As well, metaverse creates virtual communities that can provide immersive client experiences through collaborations, marketplaces, and trainings. To leverage this, many next generation technologies such as cloud, AI, blockchain, IoT, augmented reality, and virtual reality will need to unite and come to the forefront. Metaverse may

drastically change the insurance sales process and enable direct sales activities with avatars in several ways. The main appeal of the metaverse are avatar identities. Using virtual 3D avatars, users can participate in events within the metaverse and interact with the avatars of others. Insurance companies could use this aspect of the metaverse to simulate situations where potential clients would use insurance, enabling them to better understand its value. Virtually experiencing the impact of events like car accidents and fires or illnesses (health insurance), potential customers could realize and recognize risks that they were previously unaware of. Some insurance companies have already connected with their customers in unique ways through VR. A pioneering South Korean insurer now has a 'virtual counselling window', while other major insurers in the APAC region offer 3D experiences focusing on healthcare, sustainability, and wellness. As the adoption of metaverse-based platforms grows, many forecast that digital security risks will grow as well. Insurance industry experts predict that individuals and property will need ever-increasing protection from digital fraud, theft, ransomware, privacy breaches, and business interruption, among other risks. Because of this, insurers are likely to face underwriting challenges as new metaverse-related insurance lines would lack comparable models for pricing. Underwriting teams need to redesign the existing products and restructure underwriting services as metaverse technology progresses. Metaverse headsets could be used to carry out risk assessments accurately with a more granular view of hidden risk for better modelling and risk rating. The usage of AR and VR technologies provides 360° assessment by using photos of the assets and building 3D models for assessment reports, which would speed up operations, increase customer satisfaction and reduce fraud. Due to the increasing demand for new cyber products that protect digital assets like real estate, currency, games, and NFTs, insurance providers are beginning to create parallel systems that can be used to deliver their services in the metaverse. Currently, technologies such as Microsoft Mesh can create a virtual underwriting room for an underwriter or broker collaboration and training augmentation. Following the pandemic, demand for virtual health and wellness services such as telemedicine has increased. Using the metaverse could help health insurers capitalize on trends and offer immersive user experience on an unprecedented level. There is increasing interest in life and health insurers to integrate metaverse services into their benefits and allow insured customers to interact more closely with the brand. Immersive VR and AR technology with telehealth services are available that offer virtual telemedicine services that users can access at any time of the day. Following the pandemic, demand for virtual health and wellness services such as telemedicine has increased. Using the metaverse could help health insurers capitalize on trends and offer an immersive user experience on an unprecedented level. Despite the enthusiasm around its potential, metaverse technology faces several challenges due to the lack of clarity on legislation as well as data and security concerns. Additionally, the absence of high-performance and high-quality headsets that can provide a realistic virtual immersion, as well as the metaverse's dependence on expensive AR, VR and MR technologies might slow down adoption at the estimated scale. Insurers must stay abreast of both incremental and revolutionary innovations and better understand the metaverse's wide range of capabilities to be ready for the evolution of new products, channels, and business model innovations. Redefine customer

experience in the Metaverse Creating immersive experiences and reducing carbon footprint with XR Metaverse-led disruption: How to prepare for it? Cyber Insurance and IoT: Things to Consider for Better Risk Mitigation Theme Font size Line height ======================

Reimagining B2B sales: Time to put the buyer's thinking cap on

----- Arcticle source ----- https://www.tcs.com/insights/blogs/reimagine-b2b-sales-build-buyers-trust ----- Industry TCS Pace™: Speedier Digital Transformation & Innovation in Business Highlights In this article Reinvigorating B2B sales to accelerate business Buyers' focus Reimagined sales processes Supercharged sales teams Dealing with a sea of options About the author Upgrade your operating models 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. Shyam Sundar Magaral Govindan Muthulakshmi N 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. How to sell the way your buyers want to buy. Shyam Sundar Magaral Govindan Senior GTM and Sales Lead Muthulakshmi N Entrepreneur-in-residence You have these already downloaded We have sent you a copy of the report to your email again.   Geopolitical tensions and the repercussions of multiple waves of COVID-19 weigh heavily on the global economy. Major events lead buyers to think twice before spending every penny. They only get the essentials, perform a thorough evaluation, and are cautious while

making decisions. It is time for B2B sellers to reset their sales mindset—think like a buyer and question themselves. Here's a question for sellers—have you thought of how you want a product or service to be sold to you? You most likely would prefer a salesperson who is knowledgeable, respectful, and puts your needs, challenges, and preferences first. The same applies in a B2B context. Defining a buyer-centric sales approach is essential to succeed in a dynamic business environment. B2B buyers now expect the same experience as B2C buyers. In a B2C environment, buyers access information online and purchase products via digital channels without consulting salespersons. Similarly, B2B buyers prefer to research independently and order products online. The three major considerations in B2B selling when compared to B2C include: The decision-making processes involve multiple stakeholders Longer sales cycles More complex pricing or contract structures Sales teams need to build confidence and trust with buyers. We believe transforming digitally across these three dimensions will help your organization stay ahead of the competition. The first dimension is the buyers' focus area. Keeping the buyer at the center in every step increases the chances of a successful sale. It starts with identifying the right buyer based on the definition of an ideal customer profile and buyer persona. Next would be to understand the buyer through extensive research, using sources such as LinkedIn, financial reports, and common references. The third step would be contextualizing the discussions with buyers by asking the right questions to understand their pain points and gaps. Then, sellers must tailor their sales pitch according to buyers' needs. Finally, sellers must be highly responsive to buyers' queries to help them make the right decisions. These are proven best practices in the customer-centric sales approach used by skilled salespersons. However, making it repeatable and consistent across the sales workforce in an organization is a challenge faced by leaders today. In addition, B2B buying teams comprise diverse personalities across generations, gender, and other aspects, leading to long sales cycles. Adopting digital sales enablement technology solutions would help define and execute buyer-centric sales at scale. Moreover, it would create and manage personalized sales content and communications for buyers in focus across sales teams. The changing behaviors and preferences of B2B buyers adds to the complexities in the sales process. They prefer to research and order online over meeting with salespersons and making decisions. The second dimension to focus on is the sales process. In recent years, there has been a shift toward inbound sales strategies that allow buyers to self-discover solutions to their problems, as well as account-based sales with a highly targeted and personalized approach. These sales approaches heavily rely on attracting and engaging potential customers through personalized content and experiences. Gartner suggests that 72% of millennial buyers prefer a sales rep-free, self-serve buying experience; this reinforces the importance of digital engagement and the enablement of a seamless guided buying experience for buyers. The third focus aspect is building, managing, and retaining effective sales teams, as it continues to be a challenge for sales leaders in the dynamic B2B business environment. The desired skills of sales professionals have changed over the past five years. The focus is shifting from customer satisfaction to customer experience, results to outcomes, and convincing to consulting. This means that talent development strategies must shift to assist sales reps, so they can better understand data, technology, and associated insights

relevant to buyers. This will help them empathize and appreciate the needs of their prospects, and engage with the human interest aspect by connecting personal experiences, relevant case studies, and testimonials. Digital learning methods, including nano learning content, just-in-time guidance, and peer learning content, have proven effective for current day sales jobs in B2B. An effective talent strategy and the right sales tools equip the sales teams to build strong and long-term relationships based on trust and mutual success. Building cross-functional agile go-to-market teams by bringing together sales, marketing, and customer services teams to close deals while removing layers and dependencies has proven effective.   With multiple booming technologies in the market and new categories emerging every day, sales teams must prepare to address a diverse and growing set of pain points. There is a technology solution for almost every problem across these dimensions, so which ones to discard and keep is a decision that chief sales officers (CSOs) must make. Successful CSOs have not let all the options overwhelm them and have made decisions based on data focused on the perspectives and desired outcomes of buyers. Digital transformation is more than technology adoption TCS Positioned as a Leader in Worldwide Life Science Sales and Marketing IT Outsourcing Services by IDC MarketScape Avery Dennison explores new digital strategies with TCS Into the mind of the modern food consumer Theme Font size Line height
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How to choose an HRMS solution.

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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. Rhitwik Singh Business Development Manager | Platform Solutions You have these already downloaded We have sent you a copy of the report to your email again. Enterprises are increasingly moving towards smart HRMS solutions, and the market is flooded with solutions that offer innovative and effective processes and tools. If you are looking to implement an HRMS solution for your organization, many choices are available in the market. But how to decide on the right HRMS solution? This blog article aims to guide you in making that critical decision. Enterprises are increasingly moving towards smart HRMS solutions, and the market is flooded with solutions that offer innovative and effective processes and tools. If you are looking to implement an HRMS solution, many choices are available. Here's how to choose the right HRMS solution: 1. Select a technology that adopts and scales a company's culture, values, and inclusion The HRMS solution should feature a company function uniquely positioned to drive initiatives and ensure that team members feel welcomed and safe at work. This function can provide a bird's-eye view of the organization and drive initiatives to ensure an inclusive culture. While employees nowadays work both from the office and remotely, it is critical to ensure that wellness programs are inclusive and meet their specific needs. The scalability of wellness initiatives is a critical feature of an effective wellness program in today's hybrid workplace. A growing number of businesses are investigating technology solutions as components of a comprehensive enterprise-wide strategy to improve employee well-being, individual performance, resilience, mental and physical health, and job satisfaction. 2. AI-enabled HRMS solution Artificial intelligence (AI) algorithms are designed to make decisions, often using real-time data. Organizations use the information to make decisions all the time. AI can also be used for finding candidates who have the best fit between the job requirements and their skills and experience. AI-based candidate matching uses HR data to calculate a candidate's likelihood to accept a job offer, project performance outcomes, and estimate their expected tenure. Digital assistants improve the process by guiding the new hire through the onboarding steps and proactively suggesting the next steps to ramp up quickly in their roles. The HRMS solution should have AI built in to accomplish these tasks. 3. Focuses on employee well-being Employee wellness and well-being are becoming increasingly important aspects of any people-centric organization. Measurability, tracking, and integration of employee well-being remain critical features that businesses seek in a digital wellness tool. Organizations must recognize that employees' well-being requirements are dynamic and ever-changing. It is critical to understand employee sentiment and needs to ensure that well-being initiatives are relevant to what is on their employees' minds. 4. Reskilling and upskilling to cope-up with market changes Upskilling and cross-skilling is important and is likely to become more in demand in the coming years. HR teams need to undergo significant transformation to embrace digitalization and implement assistive software and technologies in their domain. Organizations prefer to reskill existing

employees and bring them into new roles rather than hire new ones, making reskilling one of the industry's hottest trends. 5. Data transparency Transparency is to add an extra layer of security. Businesses are looking to actively monitor available data and its use. Furthermore, transparent analytics workflows are now required to understand where data is gathered, how it is prepared, purified, and analyzed, and where the results are stored. The HR department is critical in educating employees on how to properly handle data. Businesses must recognize that administrators in charge of data recording and analysis, as well as human resource managers, share equal responsibility for retaining employee trust. 6. Hyper-automation for process optimization Organizations must ensure that their employee-facing processes are digital in the hybrid workforce structure. HR executives must devise strategies to optimize end-to-end value streams. Organizations need to create a broader set of hyper-automation use cases for human capital management (HCM) than are currently available. This will help organizations to optimize their processes, and automation can further reduce handoffs and labor costs, particularly in highly repeatable workflows, thereby allowing HR employees to focus on strategic tasks. 7. Third-party application integration Digitalization has emerged as a necessity for any business to foster growth by adding significant external data to an already existing project/software using distinct application programming interfaces (API) and context to the intensifying competition. To thrive in this ambitious system, software integrations are a great asset for companies with a growing employee base, and digital adoption across the spectrum is an essential solution that must enable efficient workflows and seamless operation of HR functions. 8. Simplified user adoption and change management The growing need for an agile and intelligent technological solution focused on employee happiness and experience has become the need of the hour. The organization should facilitate and address the everyday needs of employees, from check-ins and shift management to leave and payroll tracking, foster employees' continuous growth through regular feedback and development discussions. They need to maintain positive relationships and open communication channels with former employees through an alumni network. These are some of the aspects you should consider while selecting an HRMS solution, but focus on what you need—not what the solution offers—to find meaningful work and opportunities for growth. OKR – Why is it so vital? Nip employee attrition in the bud A sneak peek into employee emotions Hire the right talent with AI-driven applicant-scoring 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. =====================

Why the manufacturing supply chain needs automation

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logistical and monitoring challenges. Variation in supply chain activities result in either under- or overbuying of materials, leading to incorrect planning and cash flow projection. To mitigate these challenges, the industry is now embracing new digital interventions that can help them in areas such as optimization of procurement, automated job scheduling and monitoring, automated inventory, and warehouse management. After the pandemic, industries have set themselves on the path of sustenance to growth. One of the focus areas has been intelligently planning the supply chain. Technologies helping to do so in this area are depicted below. This infographic depicts the technologies that help in advanced supply chain planning. These include connected data using cloud, sensors, and edge devices; analytics using machine learning and artificial intelligence; connected advanced technologies such as additive engineering; and automation. In order to achieve this along with factory automation and safety enablement for the workforce, the major focus will need to be on intelligently planning the supply chain areas. This will involve organizations having the ability to: Integrated network Companies are looking to establish a connected platform to integrate internal operations and business processes. This interlocking will help them abolish the fragmented view of operations and will enable them to visualize and adjust to demands quickly and efficiently. Automated planning and scheduling will support this activity. When combined with MES, it can provide a unified view of factory operations, which impacts supply chain operations. Implementing geo-tracking solutions can help organizations understand the position of vehicles in transit. Here are three specific operational areas that can be transformed using data analytics, AI, and automation. Develop forecasting ability to streamline demand and supply: Data analytics and artificial intelligence play a large role in the ability to forecast demand and make quicker decisions to respond and synchronize according to the supply chain network. These technologies can be used to develop mathematical and predictive models that can predict future demands considering historical data. Establish logistical control tower: Creating a command center and logistical control tower will help establish a visual relationship between the manufacturing plant, suppliers, logistics partner, and customers. The command center may connect to back-end systems that are managing fleet, suppliers, etc., and provide business process indicators. Automating warehouse management system: Modern warehouse management solutions can minimize errors in inventory tracking. Integrating the same with other manufacturing systems (such as MES) will give a clearer picture of inventory consumption and help rationalize the operations. The supply chain disruption caused by the pandemic has helped all industries, especially the manufacturing industry, draw lessons on how to sustain and survive amid uncertainty and disruptions. The industry is now keen to adopt technologies such as: Factory automation powered by industrial IoT Integrated production planning and scheduling AI-driven demand and supply chain planning Remote monitoring and AI-driven decision support systems Connected products and servitization These technologies enable enterprises to rationalize their operations, reduce costs, and increase operational efficiency. TCS Hyperconnected Supply Chain: Ensuring Sustainable, Resilient SC Building Future-proof Supply Chains in Auto & Industrial Manufacturing TCS Neural Manufacturing: Building a Connected Ecosystem

How Web3 and blockchain will disrupt the insurance industry

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industry. Web3 insurance is already an accepted term—it denotes the use of Web3-enabled technologies, such as blockchain, smart contracts, decentralized applications that run on a blockchain network rather than on a single computer, and crypto-backed financing, in creating insurance products. Insurers need to learn about technologies such as blockchain, evaluate what they can do for their business, and leverage them to build new products or services or enhance existing ones. Yes, Web3 is set to disrupt the insurance value chain. Let's see how. But first, the advantages Web3 technology brings several benefits to the insurance industry. Insurers can use these features to create new products and policies, prevent exploitation during contract exchange, and reduce the likelihood of contracts being hacked. Whenever there is an instance, insurers can automate claim processing and payment processing, drastically reducing the possibility of disputes between the insured and insurer. As per a crypto research report, automation reduces the insurer's operation costs by 25%, while also reducing the chances of fraudulent claims. Also, there is an option for customers to purchase insurance from a platform, that is, a group of coverage providers, rather than from a single insurer.   Some insurers have already embraced Web 3 technologies and there are already a few Web 3 insurance products in the market. Crypto-currency wallet insurance: This covers protection against theft of crypto-currency during a cyber-attack. Collateral protection for crypto-backed loans: In crypto-backed financing where crypto holdings are used as collateral when a loan is processed, the borrower must pledge collateral with a greater value than the amount borrowed. Hence, there is a need for providing coverage to the collateral pledged by the borrower. Collateral protection coverage reduces the risk for the borrower and lender involved. Smart contract cover: This coverage helps the insurer in the event of a smart contract getting hacked and funds being fraudulently moved from one account to another. For example, the funds might get moved to an email address that doesn't belong to the original investor. So, this type of coverage protects against any permanent loss.   Data monetization for on-chain insurance products: Web3 insurance products require high-quality, trusted sources of data for any type of smart contract. This is to ensure that the underlying infrastructure is secured from any threat. Any data provider can monetize Web APIs and sell the data to blockchain applications. Leveraging the Web3 features listed above, insurers can optimize their operations, provide efficient services, and build new avenues of growth.   An opportunity for insurers to reimagine their business. Investors and businesses who want to participate in the Web3 ecosystem face significant risks, both financial and non-financial. These risks represent a commercial opportunity for insurers, assuming that they can be managed prudently. Currently, the market is underinsured (less than 1% of digital assets are insured) and there is room for growth with increased adoption. The ability to access insurance may also contribute to the widespread adoption of digital assets. Web3 offers the potential to transform the insurance industry. It gives insurers the opportunity to reimagine their business models and introduce new forms of mutual funds or platforms. Companies do not need to restrict themselves to replicating traditional insurance in a Web3 context.   A figure depicting the ten reasons, such as strategy, efficiency, innovation, perception, partnerships, competition, service, trust, equity, and adoption, that impact insurance blockchain and web3. Harnessing the cloud for property and casualty insurance Life insurer

adopts a zero-trust framework Insurer builds central access management Improve resilience with TCS Financial Services and 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 ======================

Cloud operations automation: Three things to focus on

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strategies, organizations must also look at adopting automation for their cloud operations. Automation helps eliminate challenges faced in manual processes such as repetition, inefficiency, and errors in cloud operations. Typical operational tasks such as resource provisioning, configuration management, software deployment, resource tagging, security controls, logging, and monitoring functions are some of the top use cases for cloud operations automation. While automation plays an important role in managing workloads in the cloud, orchestration addresses the process of sequencing and codifying those automated tasks to occur at specific times for specific purposes. By 2025, 70% of organizations will implement structured infrastructure automation to deliver flexibility and efficiency. That's according to Gartner. Many have already embarked on the transformation journey, making the most of cloud-native automation and orchestration solutions that help them: Build a secure and scalable cloud environment as compared to manual operations. Free the cloud operations teams from repetitive and manual administrative tasks. Reduce errors with the deployment of more predictable and reliable workflows. Enable IT teams to focus on higher-level work to address business needs, such as integrating cloud services or developing new features. Mantra for effective cloud operations automation. While the benefits of cloud automation are clear, many still struggle with their automation initiatives. Here are three best practices you can follow to get the maximum value from your cloud operations automation: Prioritizing core operations functions to automate is the first step. Business applications rely on a number of microservices and containerization environments, making cloud operations necessary to run these applications efficiently in such a complex environment. It is also critical to implement the right processes and tools to enable automation, to reduce or eliminate manual efforts, to provision and manage cloud-based workloads and services. Setting up efficient cloud operations involves readiness from people, process and tools perspectives with automation and integration aspects. Automation plays an important role in cloud operations and companies can take a phased approach to it. They can start by carefully prioritizing the core operations functions, such as provisioning and configuration management; event and incident management; availability and continuity management; and security and compliance management to automate their cloud operations and run it efficiently. With automation, companies are also embarking on proactive and predictive cloud operations powered by artificial intelligence. Five-point strategy for efficient cloud operations TCS' conversational AI solutions on AWS Cloud How monitoring and observability support cloud operations TCS' cloud operations services with AWS Cloud 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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How monitoring and observability support cloud operations

----- Arcticle source ----- https://www.tcs.com/insights/blogs/adopting-monitoring-observability-successful-cloud-operations ----- Solution Grow,

Innovate, and Transform with TCS and AWS Cloud In this article Challenges in CloudOps Monitoring and observability Reinforcing CloudOps The way forward 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. Ashish Vyas 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. 6 MINS READ Ashish Vyas Head, Cloud Foundation Strategy and Modernization, AWSBU, TCS You have these already downloaded We have sent you a copy of the report to your email again. Highlights Growing complexity of cloud operations are a challenge for many companies. There's no doubt that cloud helps organizations adopt innovations for rapid digitalization, and achieve the scalability, flexibility, and security required to grow their business. And so we have more and more companies taking a cloud-first strategy for IT modernization and for driving business growth. Companies have adopted cloud-native solutions—including microservices, serverless, and container technologies—to meet their business needs. However, cloud operations teams require deeper insights to improve the performance of their cloud operations and get to the root cause of issues during operational interruptions. Getting to deeper insights and value faster with innovative solutions. Using conventional monitoring techniques and tools for cloud operations gets complicated when tracing events for greater insights and tracking interdependencies across multiple systems in complex architectures. Thankfully, today there are several innovative monitoring and observability tools which offer an end-to-end visibility into an organization's IT operations, business operations, and enhance their customer experience. These tools help organizations to: According to Gartner, "By 2026, 70% of organizations successfully applying observability will achieve shorter latency for decision making, enabling

competitive advantage for target business or IT processes." Ensuring effective monitoring and observability. Clearly, monitoring and observability play a key role in unlocking value from cloud operations. But how do we ensure effective monitoring and observability? Here are three keys: Define the right monitoring and observability methods for insights into cloud operations. Avoid a 'one-size-fits-all' approach to monitoring and observability of IT environments. What is monitored and the depth of observability need to align with the actual purpose for which the environments are being monitored. Monitoring helps understand the health of IT operations that serve business needs. With the right metrics, organizations can gain useful insights into the outcomes of operations, make informed decisions, and ensure uninterrupted cloud operations. Bringing together IT operations logs is important as it provides metrics for continuous visibility. Implement the set of integrated tools and leverage cloud-native solutions. Identify and implement the right tools to monitor technologies and frameworks including container and messaging platforms in the IT environment. With real-time dashboards and reports, these tools can provide relevant insights into the cause and impact of problems in the IT environment. Identify what really needs monitoring and observability from the 'business' lens. Consider the business perspective, not only the technology environment when deciding what needs monitoring and observability in the IT environment. Relate the key performance indicators (KPI) of business operations to the IT environment where monitoring and observability are applied. This will help site reliability engineering (SRE) teams to quickly identify and resolve issues as they would be aware of the business context. Realizing 'always-on' cloud operations and delivery. Many business applications today rely on microservices, containerized environments, and cloud-native solutions. Organizations can unlock greater business success through monitoring and observability of their IT environments. They can assess their cloud landscape with an operations matrix and define an integrated tools solution that leverages automation, artificial intelligence, machine learning, and integrated dashboards. With that taken care of, they will be able to run modern, next-generation applications and systems without interruptions, offer consistent performance, quickly resolve any unforeseen issues, and ensure 'always-on' delivery. Pave your path to value with AWS Cloud TCS' cloud operations services with AWS Cloud Five-point strategy for efficient cloud operations United Airlines all set to fly higher 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 EU banks can ensure efficient ESG risk disclosure by 2024

Industry Banking Services Transformation: Unlocking Exponential Value Solution TCS Consulting Services to Achieve Success in the Digital Era Accelerate Enterprise Digital Transformation for Sustainable Change Highlights In this article EBA regulations Transitional risks Physical risks Mitigating actions Overcoming data hurdles 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? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Niki Shah 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. Niki Shah Consultant, Sustainable Banking, Finance & Investments, BFSI, TCS You have these already downloaded We have sent you a copy of the report to your email again. In April 2022, the European Banking Authority (EBA) published its final draft of Implementing Technical Standards (ITS). Since then, over 250 regulated banks in the European Union have been mulling over frameworks, systems, and processes to comply with the new regulations. They are expected to become compliant by June 2024, albeit in a phased manner. Banks are focusing on article 449a of the Capital Requirements Regulation (CRR), which mandates disclosure on environmental, social and governance (ESG) risks. It is expected to help capital markets reduce information asymmetry, mitigate environmental

risks, and leverage new business opportunities while adapting to climate change. Banks must quantify transitional and physical risks and provide a window into their business, strategy, governance, and overall risk management. This regulatory approach will foster transparency and accountability in the EU and global sustainable capital markets. It will also inspire independent banking authorities in other jurisdictions to adopt similar measures, which will help markets transition to a low-carbon economy.   Banks are now required to report on the energy efficiency of their real estate assets covered by loans. Additionally, they are expected to disclose their aggregate exposure to the top 20 most carbon-intensive firms in the world. Next, they will need to report the credit quality of exposures to Nomenclature of Economic Activities (NACE) sectors, emissions, and residual maturity. This will require institutions to establish frameworks, systems, and process to identify and report on Scope 1, 2, and 3 greenhouse gas (GHG) emissions of clients and their counterparties. Finally, banks will need to disclose their banking books' Scope 3 emissions with regard to alignment metrics defined by the International Energy Agency (IEA) for the 'net zero by 2050' scenario. Recognizing challenges around Scope 3 emissions reporting, the EBA has put in place transitional measures for institutions to begin reporting by June 2024. Disclosures on physical risks will require banks to identify exposures by NACE sector and geography. This will include exposure to chronic and acute climate hazards such as heat waves, droughts, floods, hurricanes, and wildfires. These narratives can be supported by incorporating climate data from public databases such as National Oceanic and Atmospheric Administration, PCA Global Drought Risk Platform, and the World Bank's climate change knowledge portal.   The regulations have introduced two complementary key performance indicators. These are the Green Asset Ratio (GAR) and Banking Book Taxonomy Aligned Ratio (BTAR). These KPIs will enable market participants to understand taxonomy-aligned financing activities to mitigate climate risks. They will also shed light on how banks are helping clients and counterparties transition and mitigate their own ESG risks. While the GAR is focused on large corporates and retail exposures, the BTAR focuses on smaller corporates. These activities are grouped by financial and non-financial corporations, households, and local governments. Figure 1 illustrates the ECB risk disclosure timeline for EU banks. An infographic depicting the timeline for EU banks to quantify transitional and physical climate risks and take mitigating actions. Between 2022 and 2024, banks must disclose risks such as exposure to carbon-intensive firms and scope 3 emissions by sector relative to the International Energy Agency's alignment metrics. They must also make green asset ratio disclosures with respect to climate mitigation and adaptation. The EBA has recognized institutions' challenges around ESG data management, specifically from their counterparties. The disclosure of ESG risks presents two opportunities for banks. First, they can evaluate their own business models, lending activities, and risks. Second, it is an opportunity for due diligence and responsible engagement to help counterparties transition and mitigate climate risks. To comply with this regulation, institutions' board of directors must prioritize and incentivize identification and coordination among cross-functional teams to build data systems, frameworks, and processes to collect, verify, and assure data. Banks must prioritize embedding capacity-building measures to address ESG data challenges among smaller corporates, SMEs, and retail

clients due to institutional capacity and know-how.   To that end, banks must leverage AI-backed ESG solutions and advisory services to align their portfolio with EU taxonomy, generate investment insights, and calculate the carbon footprint for SMEs. They must digitalize the energy-efficient mortgage process by leveraging cognitive technology and assess financial losses from climate change to assets and investments. This will enable the European banking sector to address roadblocks and meet regulatory requirements in a cost-effective and quality-assured manner. It will help clients demonstrate internal accountability, foster transparency, and restore trust among sustainable market participants while banking on new business opportunities to transition to a circular economy.   TCS ESG Integration Solution for Sustainable Finance & SFDR Compliance The rising importance of ESG ESG Integration into Credit Assessments Transitioning to green IT in banking, financial services, and insurance Theme Font size Line height ======================

How cloud can speed lending for small and medium enterprises

----- Arcticle source ----- https://www.tcs.com/insights/blogs/cloud-solutions-speed-lending-for-small-medium-enterprises ----- INDUSTRY Banking Services Transformation: Unlocking Exponential Value In this article SME lending Key challenges Overcoming hurdles Cloud and automation Securing data 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. Balamurugesan Velusamy 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. Leverage AI- and ML-powered cloud platforms to improve agility, scalability, and efficiency for lending at small and medium enterprises (SMEs). Balamurugesan Velusamy Enterprise Architect, AWS Business Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. Highlights Banks must capitalize on the opportunities small and medium enterprise (SME) lending offers. SME lending has become a profitable business for banks. According to the Federal Deposit Insurance Corporation (FDIC), SMEs make up 99.9% of all US businesses and generate 47.5% of employment. And according to a World Bank report, the world's micro, small, and medium-sized enterprises have unmet finance needs of approximately US$ 5.2 trillion a year, roughly 1.4 times the current level of lending for such enterprises. Today, SME lenders process loans through departments in corporate banking, where the process is mostly manual and time-consuming. Banks need to transform their SME lending process so that there is minimal manual involvement while complying with mandatory credit and quality checks. Currently, there are several challenges in processing SME loans. Topmost among them are: Cloud-native services can help lenders digitalize and automate SME lending for improved customer experience and faster processing. An enterprise-wide, end-to-end digitalization of the SME lending process can help overcome existing challenges. Digitalized business management workflows, including loan origination capabilities, can help banks close more loans and generate more opportunities. Automating the customer journey using cloud technologies can streamline SME lending processes and elevate customer and employee experience. All over the world, many SME businesses are already adopting cloud solutions and leveraging serverless computing with scalability to enable their SME businesses to move fast and quickly meet customer requirements. Using cloud and machine learning (ML)-based solutions to taking credit decisions. With cloud solutions, banks can classify and extract the required information from different customer documents—including credit reports, bank and income statements, and balance sheets. The extracted information can be validated by leveraging the banks' customer relationship management (CRM) systems to avoid fraudulent activities. Cloud can also help with challenges around traditional credit decisions. Today, many banks are dependent on relationship managers or underwriters who make subjective decisions. With advanced automated credit decisioning models, banks can understand customer behavior, increase revenue, and reduce credit losses. And leveraging ML-powered cloud solutions, they can build models to assess lending risks and enhance the performance of credit models. Moreover, the lending process involves loan origination, risk evaluation, credit decisions, underwriting, collateral management, debt collection, loan servicing, and reporting. Making it easier for banks are several AI and ML-powered solutions that enable digital loan origination and risk management, automated financial spreading and data extraction, and workflow management. Not just that, these solutions also enhance the effectiveness and efficiency of communication with the customer throughout the loan cycle—from providing the status of the application to final approval and disbursement. Protecting sensitive customer information with cloud. With cloud platforms, banks and lenders can connect with on-premises

networks to directly access secure customer data which moves between networks with multiple encryption options. Using cloud solutions, sensitive data can be secured by encrypting it across applications and services. Artificial Intelligence (AI) and ML-powered cloud solutions offer bankers and lenders the digital agility to transform their business processes. They can leverage AI capabilities to fetch, store, and govern data, incorporating these data-driven insights in their processes, applications, and microservices. Later, these capabilities can be used to automate processes, process documents, manage workflows and manage tasks better. The potential of cloud and automation to transform SME lending is huge. Banks must make the most of them to enhance the experience for customers and take SME lending to the next level of growth securely and safely. Banks Fighting Fintech: Stepping Up to Transform the SME TCS Commercial Lending TCS Lending and Securitisation Banks and the Revival of SME and MSME Customers in COVID-19 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 twin-driven adaptive supply chain

----- Arcticle source ----- https://www.tcs.com/insights/blogs/supply-chain-transformation-digital-twin ----- Industry Future-Ready Manufacturing: Partnering in your journey to a sustainable manufacturing enterprise Highlights In this article The state of today's supply chains Taking on the uncertainties Building an intelligent ecosystem Paving the way for futuristic manufacturing 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? Join our team. Find the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Sathyanarayanan B 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

Sathyanarayanan B Consulting partner, Manufacturing, TCS You have these already downloaded We have sent you a copy of the report to your email again. Rising operational costs coupled with technological advancements and elevated customer expectations have made supply chains highly complicated. The constant demand fluctuation due to various factors such as natural disasters and regulatory changes, to name a few, lead to unprecedented supply chain delays. Further, manual collation of stock movements and consumption pattern information from standalone systems at storage points can cause efficiency dips. Supply chain operators also find it less effective to depend on assumptions for aggregate demand and replenishment plans. Underpinning the above issues, there is a prevailing lack of visibility of real-time order status in the supply chain network. This calls for an intelligent supply chain that can adapt to handle such abnormalities and ensure resilience. An adaptive supply chain using a digital twin is the key to remain competitive and resilient. Visualization of changing conditions, real- or semi-real-time data availability, and cognitive analytics are the three key aspects of an adaptive supply chain. A supply chain digital twin is a system that integrates with a company's network and simulates the actual supply chain to forecast potential issues and abnormal situations and generate a sustainable future action plan. Let us look at some of the common impact vectors that affect supply chains and how this system can help: Supply chain digital twin helps build an ecosystem with end-to-end visibility. It creates an inherent culture of collaboration between inbound and outbound logistics and imparts cognitive intelligence – the ability to adapt to changing business climate. By fetching real world data and modelling the physical supply chain – across sourcing, production, manufacturing, distribution, and logistics– as a single integrated data model, a supply chain digital twin opens visibility into all operational complexities. This remains a digital decisioning platform to address needs. For instance, an avatar can be set up to enable manufacturers to: Alternatively, as a more cost-effective method, supply chain digital twins can fit into the existing IT landscape as micro-apps to visualize specific parts of supply chains without demanding major changes to the infrastructure. The future of supply chain digital twins will extend beyond the current boundaries of a manufacturer. It will help global manufacturers visualize the bigger picture of the overall ecosystem to catapult economic growth. With metaverse gaining mainstream attraction and evolving rapidly, supply chain digital twins will mature alongside, to offer an immersive experience in 3D virtual spaces. It is inevitable for manufacturing organizations to gain a head-start today, to prepare for the future of phygital operations, one where the supply chain is more connected, more automated, and more intelligent. 21st-century neural value chains —

Heralding the future of manufacturing Neural plants – The factories of the future The future manufacturing enterprise — Sustainable by design Adopting XR Solutions for Product Innovation & Business Growth Theme Font size Line height =====================

Foster customer engagement with a smooth returns experience

----- Arcticle source ----- https://www.tcs.com/insights/blogs/returns-management-omnichannel-customer-experience ----- Solution TCS OmniStore™: A Unified Commerce Platform for Frictionless CX Industry Omnichannel CX and Intelligent Innovation – The Future of Retail In this article Returns and exchanges Benefits Business considerations Improve returns experience 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. Jabeen Anszary 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. Part 3 of a four-part series on how unified commerce helps retailers meet modern customer expectations. 4 MINS READ Jabeen Anszary Consultant, Retail Strategic Initiatives, TCS You have these already downloaded We have sent you a copy of the report to your email again. Highlights 'Buy online, pick up in store (BOPIS) and 'buy online, return in store (BORIS)' are now part of the omnichannel and CX strategy roadmaps of every retailer. However, truly customer-centric retailers are discovering that at the heart of rich customer

experiences is the brand's ability to cater to typical customer behaviors and meet their expectations. One hidden benefit of BOPIS orders is that they encourage 'serendipity' or the joy of discovering an interesting product or deal that customers never set out to buy. This could make them change their minds about purchases already made—they may want to either return or exchange the product.   Unified commerce makes returns management hassle-free and turns it into an opportunity to foster customer engagement, helping recover a lost sale or maximize basket value while earning customer loyalty. Let's explore how unified commerce helps drive a seamless product exchange across channels. A simple and easy returns and exchange process goes a long way in securing goodwill and loyalty of customers. While it demonstrates respect for the customer's post-purchase decisions, seamless returns process offers several benefits to retailers and customers alike: With the right technologies and best practices, returns can be a source of loyalty and growth. Here are a few considerations for retailers to optimize returns and exchanges while ensuring superior omnichannel experience for customers. 1. Returns reconciliation The impact of returns can be overwhelming and involves complexities in varying degrees—the inventory carries costs if the returned product makes its way again into the inventory ledger and occupies space at the store or distribution center; retailers need to evaluate whether the return implies a full or partial refund based on several factors (manufacturing defect; damaged in transit to the customer; incorrect size; or just a change of mind); retailers also need to check if the product was part of a bundled or a limited offer. In order to make these decisions, the business needs to have unified data to be able to process returns using the original purchase data to provide a seamless returns experience.   2. Streamline reverse logistics Every returned product needs to be evaluated for the next-best action: should it be repaired, restocked, refurbished, or recycled? By investing in a reverse-logistics software, retailers can identify the path for returned products that will generate the highest cost recovery. Further, artificial intelligence can help analyze products, returns rules, and sales demand so that products in good condition can be put back on the shelves or on the storefront. 3. Payment methods for each return While most customers may want to be refunded the same way they paid, store credits or gift cards can be a great way to ensure customers don't spend their money elsewhere. The payment methods for each return scenario type should be configurable in the system. 4. Handling returns without receipts While most businesses demand a receipt as part of their returns policy, consumer rights laws dictate otherwise. Further, accepting returns without receipts is a key driver of customer experience, improving loyalty. In case of a genuine return, businesses can agree to a credit card slip or statement. The system should be configured to track the barcode or serial number of the product, or the customer's email and phone number to accept returns. 5. Handling returns abuse With homes turning into lounges following the pandemic, 'bracketing' (ordering several sizes or colors and purchasing just one) and 'wardrobing' (returning a product after a single use) by customers have become a nemesis for retailers, especially those with a lax returns policy. Businesses need to train their frontlines to be able to spot returns abuse and avoid conflicts. For customers, convenience is being able to purchase a green cardigan online and return it at the store, but for retailers, product returns are a multi-billion-dollar problem. Despite mounting returns threatening to erode profit margins, retailers are

beginning to accept them as a key customer trend and central to customer experience. With a single view of customers, orders, and inventory, powered by unified commerce and backed by an understanding of the implication of returns on the business and internal processes, retailers can ensure an optimized returns experience. In the next post, we will discuss how unified commerce is enabling flexible fulfillment. Unified commerce: The key to orchestrating modern customer journeys Customer journeys with unified commerce: scan and go Give customers freedom of choice with flexible fulfillment TCS OmniStore™ named Omnichannel Technology of the Year 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 combat rising threats to public sector data security

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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. Patrick Bodegraven General Manager, Public Services, TCS ANZ You have these already downloaded We have sent you a copy of the report to your email again. Big questions The biggest questions need the boldest answers. That's why we're using our global scale, technology expertise, and collaborative spirit to move toward a better today and a brighter tomorrow together. The public sector generates and holds enormous amounts of data. It is critical to the government's functionality and creates significant challenges and opportunities. The Australian government has increasingly invested in data analytics to improve the capabilities and opportunities to leverage this data in recent years. The global pandemic accelerated this adoption while creating new challenges the sector must overcome, such as data protection. How has the role of data management changed in Australia? The role of data management has primarily changed due to the shift toward remote and hybrid working policies. Organisations across the globe have adapted to enable employees to work outside the office via remote access or take company-owned laptops and similar devices home. However, for many government agencies with data classified as critical, employees of some functions have had to remain in office, creating an unusual hybrid model. The Australian government has always managed and classified data across several categories such as unclassified, official, protected, secret, and top secret. Having these controls in place across most government networks meant they were pre-enabled to allow people to work from home and access the necessary data according to their clearance. Having trust models such as this means that staff can only access data according to the classification of their security status, as they would from an office location. While the data access part was already taken care of, with the majority of people working remotely, it was the fear of malware, phishing, and spear-phishing attacks that kept government organisations on their toes and made it essential for the employees/end users to be more vigilant in ensuring that the security of their end device is still protected, as if it was in the office. For better or worse, there is no way back to how it was before. They must find alternative ways to keep data and devices secure and protected. How is data being protected securely and efficiently? The Australian Federal Government departments have been classifying data across the four categories outlined above for many years. Data is always protected, either according to the job role or access. Typically, you can only view the data you are classified to see. At the highest classification levels, data and information become compartmentalised. Individuals can only see the information required for a specific job role. Government organisations have typically engaged in back-up routines to protect against data loss through hardware failures and internal threat actors. The Australian Cyber Security Centre (ACSC) recommends the 'Essential Eight', a minimum-security standard that outlines essential processes to protect and prevent data and devices, such as ensuring that when a user leaves an organisation, their rights get instantly revoked. It also recommends the level of patching and cyber security that is required to be implemented by Australian government agencies. These recommendations have helped ensure consistency across the board and supported organisations in developing a level of maturity. Additionally, the

Australian National Audit Office can audit organisations' compliance against the 'Essential Eight' annually. So, even if all the required recommendations and controls are in place, how well they are implemented decides how secure and efficient the data is in any organisation. The growth of existing and emerging technologies is both a help and a hindrance to data management. What are the top things to watch out for the C-suite? One of the key things to watch out for the C-Suite would be the emergence of threat actors. While we have technology that enables us to protect our infrastructure and environments better, threat actors are constantly working on better ways to access or damage data. Therefore, it is critical to be aware of the latest cyber security requirements and ready to leverage the latest technologies that will provide an organisation with the highest levels of protection. As organisations adopt cloud to become more agile and responsive, the proliferation of cloud providers offers great diversity to an organisation but also creates a hindrance around determining which is the best solution and which will best protect the data. The Infosec Registered Assessors Program (IRAP) recommendations and certifications, provided by the ACSC, enable each organisation and provider to undergo an assessment that evaluates more than 1,000 security recommendation controls to ensure that data is kept safe. Numerous cloud providers have received IRAP certification, which gives an organisation a level of comfort, reassurance, and risk tolerance when selecting a cloud solution or provider. The emergence of cloud technology has created another watch out for data duplication. However, these impacts can be minimised with a well-developed and well thought out cloud migration strategy. What are the top questions being asked of the C-suite around data management? One of the most pressing questions is how an organisation can protect against ransomware, data loss, and the subsequent potential financial impact. While data management can cover many security areas, this issue is a real threat because some ransomware can encrypt back-ups, preventing and negating the ability to recover. What are the main challenges associated with the future of work for the C-suite of today? Accepting the risk to enable workers to work from any device at any location is one of the critical challenges for the C-suite of today. The bring-your-own-device idea has been discussed for years, but government agencies baulk at the thought because of the necessary security requirements needed for classifications outlined above. Many remote solutions do not allow confidential data to be transmitted over the internet, meaning that implementing solutions such as zero-trust networking in place will enable an organisation to offer its end users an option to avoid utilising technologies such as virtual private networks for connecting back to the central organisation. It enables the end user to connect to a system from anywhere in the world, while providing encryption that protects data in transit from being visible to threat actors. However, the risk models in government will need to change to enable higher classification levels to adopt these technologies. It is a question of risk and whether individual organisations are willing to adopt it, update their technologies, and embrace new ways of working. Finally, running virtual workloads and workstations in the cloud is an option. It means that the end user is working on a pane of glass, and the data can be protected, so it cannot leak out from the glass. However, there is always a risk associated with accessing – or having external access to – the internet, as this presents another attack vector for threat actors. TCS Sustainathon in South Africa:

Give customers freedom of choice with flexible fulfillment

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is due to the convenient, free, and fast offering and the immediate gratification of getting the items of their desire the same day. Unified commerce empowers retailers to offer customers a plethora of shipping and fulfillment choices such as buy online pick in store (BOPIS), buy online return in store (BORIS), reserve online pick in store (ROPIS), ship to store, ship from store, curbside pickup, and lockers. Customers want to shop in a way that is most convenient and timely for them.   Let's explore how unified commerce offers customers more control over their shopping journey. The shopper's entire journey is flexible—it can start as online shopping and end with an in-store pickup or a home delivery. Shoppers will also get an opportunity to choose from a virtually endless aisle of inventory within a retailer's network. Thus, flexible fulfillment offers enormous benefits to retailers and customers alike: Though offering flexible shipping and fulfillment options can drive customer loyalty and increase opportunities to upsell, it is not simple to implement and has its own risks. Retailers need to invest in modern technologies and design better operational processes to ensure that customers enjoy the best of both worlds—online shopping and in-person pickup—and enjoy a seamless experience. Here are a few considerations for retailers planning to offer flexible fulfillment options: Delighting and surprising customers at every turn requires a powerful and agile unified commerce platform that has a global view of customers, orders, and inventory. A unified commerce platform will enable retailers to have a single view of purchases, returns, or exchanges that have occurred throughout an entire shopper journey. It can provide enterprises the freedom and flexibility to reuse their existing infrastructure to roll out new capabilities quickly without worrying about channel constraints. Customers can receive their products in a way that is fast, convenient, and cost-effective and enjoy a frictionless shopping experience. Unified Commerce: Driving Superlative Omnichannel Experiences Customer journeys with unified commerce: scan and go Foster customer engagement with a smooth returns experience TCS OmniStore™ wins most innovative product 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 =====================

Real-world data: Paving the way for better health equity

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based assessments. The increased availability of real-world data is helping policymakers understand the impact and effect of drugs more clearly. They can also review and evaluate potential issues related to drug discovery. With the enhanced use of real-world data, regulatory bodies can set new guidelines and issue more effective approaches for clinical trials. It helps the regulatory authorities evaluate and monitor post-market risks. Technological advancements in acquiring, storing, and analyzing real-world data help researchers scale up the analytics and improve the efficacy of medicinal research. Drug discovery demands greater diversification of patient demography, as different categories of patients may respond differently to the same medicine or vaccine. While the results of randomized controlled clinical trials may or may not apply widely, the modern approach to clinical research makes clinical trials more inclusive and diversified. This increased awareness of health equity from civil societies, government, and non-government organizations has underscored the importance of real-world data usage in clinical trials. The data modeling considerations for real-world data differ from other data modeling types. Figure 2 demonstrates the collection of data from diverse sources. The volume and velocity of data generated from various sources are different or inconsistent. Each source may produce the data at different granularity levels. Though each source can generate information in a predefined data type, the complete data set is a vast collection of structured, unstructured, and semi-structured data. Another important aspect is that these data sets contain personally identifiable information, which needs careful consideration from a data privacy perspective. As clinical trials expand the scope and embrace more diversity, the geographical aspect increases the complexity of dealing with real-world data. Each country's data privacy guidelines must be factored in for dealing with personally identifiable information. The illustration represents the collection of structured, unstructured, and semi-structured data from diverse sources that vary in volume and velocity. Full screen Pharma companies must take various aspects into architectural considerations to maximize the benefits of using real-world data in clinical research. A future-ready data architecture (see Figure 3) can offer researchers extensive advantages for carrying out analytics at scale. The essential elements of building the data strategy are described below: Data acquisition and harmonization: A comprehensive approach should be taken to acquire data from multiple sources in disparate forms. The system needs to be scalable for exponential data growth. Data curation: Indexing and cataloging unstructured data, including medical images, are fundamental for traceability. It is critical to maintaining the audit trails, linkages, and traceability of data. Resolving data quality issues: Data inconsistencies and gaps are found, especially in electronic health records, and may need fixing for different technical reasons. Hence, following the preprocessing and data cleansing methods can help eliminate these gaps.   Building IT controls for data governance: Categorized as protected health information (PHI), this data is crucial to ensuring adherence to federal guidelines like HIPAA and GDPR while implementing the required IT controls.   The illustration depicts a future-ready data architecture that enables researchers to carry out analytics at scale and benefit from extensive advantages. Full screen Extracting value from data: The effectiveness of this layer is critical in extracting meaningful information and providing it to the end users as required. Apart from diagnostic, prescriptive, and predictive analytics, data

visualization is also a desired feature of this layer. Continuous inflow and exponential growth of data require a robust real-time high-speed data analytics framework. Successful usage of real-world data will set a cornerstone for health equity. Given the modern developments in data science, pharmaceutical scientists can speed up the clinical research journey even further. Applying the right technologies and a contextual solution approach can help clinical researchers achieve faster drug discovery. Real-world evidence services Pharma major gets a digital factory J&J creates new IoT architecture with TCS The business of human microbiome 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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Fortify enterprise IT with a digital twin

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capabilities. Neural surrogates are program models used to power digital twins for enterprise IT systems. These surrogates are data-driven and mimic the behavior of computer programs in terms of data input/output characteristics and are faster than the actual program run for enterprise IT. They have smarter analyzing capabilities to help improve the simulator's performance. Predictive and proactive maintenance A performance digital twin mitigates deployment issues and reduces turnaround time through predictive and, thereby, proactive maintenance. A performance digital twin of an IT system allows users to analyze issues like a sudden seasonal increase in user load, or latency when deploying a new application. Ongoing deployment may sometimes fail to accommodate new business requirements such as increasing or reducing storage capacity, scalability, enhancing security, or integrating new features into the existing system. In such cases, making proactive migrations enable system administrators to drive performance maintenance, ensuring a seamless functioning of the overall enterprise IT system. A performance digital twin of an IT system allows analysis of scalability, throughput, and latency. It lets users analyze issues that could crop up, for instance, when the user load increases by tenfold or the throughput and latency that is expected when deploying a new application. As enterprises deploy data lakes to consolidate and analyze the information and gain business insights, using digital twins will reduce business downtime. Co-designing the application and its digital twin leveraging agile frameworks helps save time and effort not only in development but also in testing data to train the digital twin. TCS TwinX™ Improve artist management with digital twins Reducing food waste with smart technology TCS named a leader in digital twin services by Everest Group 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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Fulfill every customer expectation with a universal cart

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recommendations to maximize basket value without seeming overzealous. Let's explore how a unified cart is at the core of seamless omnichannel experiences. The unified cart offers enormous opportunities for retailers to personalize the shopping experience and drive loyalty and growth. As online and offline channels sync and customer journeys become non-linear, a unified cart will be a key enabler for driving seamles shopping experiences. Retailers need to factor a lot of business decisions to deliver on the promise of a seamless experience: In Part 2, we will explore how scan-and-go is driving the self-serve omnichannel experiences that modern customers seek. Customer journeys with unified commerce: scan and go Foster customer engagement with a smooth returns experience Give customers freedom of choice with flexible fulfillment Duluth Trading Company Transforms In-Store Checkout Experiences with TCS OmniStore™ 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 =====================

Customer journeys with unified commerce: scan and go

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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. Part 2 of a four-part series on how unified commerce helps retailers meet modern customer expectations. Jabeen Anszary Consultant, Retail Strategic Initiatives, TCS You have these already downloaded We have sent you a copy of the report to your email again. Customers are demanding more control over their shopping journeys and brands that don't enable self-serve journeys risk being 'swiped left' by Gen Z. Having got used to 'across-the-room' interactions with Alexa for updates on everything from traffic to news, to playing their favorites on Spotify and Netflix, the modern shopper expects similar voice-enabled experiences while shopping. This, augmented with the desire to have more control over their shopping journeys, is spurring the trend of self-serve retailer apps. Let's explore how unified commerce is powering digital shopping experiences. Apart from quick checkout, scan and go adds new levels of convenience to the digital shopping journey. Packed with powerful features aligned with the expectations of the digital customer, it offers several advantages: Scan-and-go offers customers superlative digital experiences while shopping in-store and businesses new insights into customer's baskets and product affinity. Here are a few considerations for retailers exploring Scan and Go as a lucrative option so that it is profitable for them and delightful for customers. Handling theft and fraud: While scan-and-go offers greater autonomy to customers, it is also susceptible to misuse and may not be able to prevent thefts. One way to mitigate this looming threat is to install signages for scan-and go customers to display the QR code or digital receipt at the checkout counter before exiting the store.   Age verification for age-restricted items: With thousands of products being sold every day, managing underage sales is a huge compliance challenge that large departmental stores and retail chains face. By embedding an age-verification workflow—from marking all potentially age-restricted items in the master product database such as cigarettes, alcohol, and knives, to triggering an age-verification prompt before checkout, to a store associate completing the ID proof check and approving or rejecting the transaction, retailers can enable a quick, frictionless shopping experience. Handling exceptions: There may be exceptional scenarios in the case of scan-and-go users, such as price discrepancies, items not getting scanned, or customers wanting to split their payments (for example, part card, part cash). Retailers must ensure support is at hand– customers can reach out for assistance or continue checkout at the till. The cashier must be able to retrieve the customer's order and continue with the checkout. Deactivation of product tags: A common challenge for retailers is deactivating product tags for scan-and-go' to avoid activation of security alarms at exit for valid customers. Bulk deactivation of tags of products upon payment completion is recommended to avoid walkaways with live tags. Flexibility to continue checkout at till: Sometimes, customers may want to redeem their loyalty and reward programs or may not want to miss out on the common banter with the cashier at the till. In such cases, the customer must be given the flexibility to proceed to the checkout counter. A pay-at-

the-till option with a code in the app can be provided that can be scanned by the staff at the POS for the checkout. Speedy store assistance for scan-and-go customers: The pandemic accelerated digital adoption by senior citizens. Irrespective of age, first-time scan-and-go users may require assistance. A dashboard view of store activity showing how many customers are using the app at the store with a trigger for assistance based on dwell time in a particular aisle or repeated scanning will ensure smooth shopping for customers. Customers' demand for mobile-first solutions has ushered in a new era of contactless shopping. With interesting features such as visual search, item lookup, and voice assistants, Scan and go apps are turning out to be a multipurpose solution for optimized shopping experiences. And this is just the beginning. As customers increasingly demand more control over their shopping journey, retailers have plenty of room for innovation to make the digital shopping journey engaging and convenient. In the next post, we will discuss how unified commerce is enabling seamless returns. Fulfill every customer expectation with a universal cart Foster customer engagement with a smooth returns experience Give customers freedom of choice with flexible fulfillment TCS OmniStore™ wins Stevie® at International Business 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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Contact center of the future: the chatbot balancing act

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work begins with hiring, celebrating and nurturing the best people — from all 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 Catriona Howell CX Business Consultant, Consulting, TCS You have these already downloaded We have sent you a copy of the report to your email again. The future of the contact center Every month, numerous articles and LinkedIn posts are published trying to predict the future of the contact center. Usually, the articles are a mixture of emerging technology and operational best practices. Occasionally, the authors seem to have struggled to think of anything that wasn't already in use by many forward-thinking centers. However, in November 2022, there was a sudden and significant shift when the first version of ChatGPT launched. The trickle of AI and bot-focused content became a deluge, which has further escalated with the rapid evolution to ChatGPT4. Observers have started to ask if this would be the end of human agents, with technology taking 'center stage' in customer-care designs. In the same month, Frontier Airlines announced they were switching off their voice channel and moving to a digital only strategy, aided by bots. Although they would be retaining some human agents, the only way to contact them would be through text-based channels. Frontier's decision continues to generate a significant amount of online commentary in customer experience circles – but why?   When automation is actually time-consuming For straightforward queries, some people prefer digital channels, which may require less effort than calling and could get the job done quickly. However, digital channels are not the best option for all scenarios. For instance, consider the following two examples. Recently, I used WhatsApp to advise a retailer that they were sending me mail for someone who had moved out ten years prior. When I had originally sent back their mail, their address should have been removed to comply with the EU's General Data Protection Regulation (GDPR). After I sent the WhatsApp message, I received an irrelevant auto-reply. Then, I replied that the answer didn't solve my issue, and I received another auto-reply asking that I repeat the information from the first message and was warned that the reply might take longer at peak times. Since my issue was not time-sensitive, I copied the information and submitted it again. 90 minutes later, I received a response, telling me the company didn't have that name registered against my postcode anymore. It was a blunt, transactional message without an apology or explanation – a poor user experience. Let's take another scenario where the impact was much more significant than extra mail. Some friends booked a last-minute flight with their 2-year-old daughter. They had missed the cut-off for online check-in and were concerned that their daughter might be given a seat on her own. Did they want to use a digital channel and wait hours or even days for a response, which might not have answered the

question? Of course not. They rang the airline, and a customer service representative was able to resolve the situation for them immediately.   The right channel for the right customer There is a significant difference between the ability to self-serve your booking and needing support with a potentially emotional, time-critical issue. The problem with a digital-channel only approach is that it is not inclusive. It assumes every customer has access and ability to use a laptop, smartphone or similar device. It also assumes they are content not to be able to speak to someone and that a text response is suitable, regardless of how complex or emotive the query might be. You don't have to look far to know this isn't true. Customers vent their frustration online and in the media at their inability to speak to someone about their issue. They report trying to get a response to email for weeks or being blocked by a bot that doesn't understand their question and constantly suggests they might like to ask something else. It's therefore not completely surprising that in a recent survey by Medallia, 54% of respondents said communicating with a human was the most important consideration when selecting a channel – regardless of their age group.   The problem with a digital channel only approach is that it is not inclusive.   Empowering customers via digital channels Designing a great digital CX requires knowing your customers and acknowledging their preferences as well as their needs. But as Coca-Cola once infamously discovered, just because a segment of customers like something new you have to offer doesn't mean you should remove the original offering. For global brands, these may differ by geo. For example, WhatsApp is a prominent channel in the Middle East and in Brazil, so users in those locations are likely to want customer service by that channel and will be happy with a bot-assisted approach. However, the scenario is quite different elsewhere. Spain has even approved a draft bill that would give customers the right to speak to a human agent, so companies doing business there in some sectors couldn't just deflect transactional queries to bots. Create the customer personas and map the journeys they will take with your brand. Align the personas and journeys to your channel strategy and ensure customers are not being disempowered by forcing them to use a channel they're not happy with or are unable to use. If the strategy requires a reduction in voice wait times and call costs, consider using AI to present knowledge articles to the agent in real-time, instead of removing the channel entirely. When you've finished planning the 'happy path,' then design for 'what if' scenarios, even unlikely ones. For example, I booked a hotel room with a brand that offers a significant level of self-service through their digital channels. However, the reservation engine crashed while I was making the booking. Although the payment was taken, a reservation number was never issued. I couldn't use the chat or the portal because the design assumed a customer would have a reservation number already.   Optimize with the customer in mind Great customer service is not just about resolving transactional issues. Bots empowered by AI can do an excellent job with those types of issues, for customers who are happy and able to interact with bots. But it's rare that their deployment is designed so well that the interaction adds a 'magic moment' to the customer's experience and turn them into an advocate for the brand, regardless of why they initiated contact in the first place. At TCS, when we work with clients who are looking to optimize their customer care, we consider all relevant physical, digital, and voice touchpoints and look to design moments of value. Some of those will involve AI, bots, and automation. Some of them won't.

The difference is that we create the design first, and then (and only then) work with our internal teams and partners to deliver it. Technology will no doubt be the enabler for the contact center of the future – but brilliant CX and contact center design needs the human customer to be kept at the front of the stage.   The Perils of Over-personalization Customer service and continuous improvement processes benefits | TCS AI in the Workplace: Three Jobs of the Future AI-enabled personalization to drive customer engagement 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 insurers can improve data privacy in ecosystems

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Insurers have traditionally used historical data to predict future risks. With the proliferation of digital technology, they have significant potential to capture data at every customer touchpoint, including third-party sources. The real challenge is the integration of data insights contributed by various players into the insurance ecosystem, as data sharing presents a dilemma. While data can allow insurers to offer personalized products, customers are worried about its safety and usage. And privacy laws such as the EU's General Data Protection Regulation (GDPR) validate customer concerns. In this scenario, insurers are looking for ways to counter data privacy fears by embracing emerging technologies such as privacy enhancing computation (PEC). The technology leverages cryptographic encryptions, data masking, and artificial intelligence (AI) and machine learning (ML) algorithms to ensure no sensitive information is shared. Yet, it allows stakeholders to extract actionable insights such as customer preferences and habits from the data. These can be integrated for cross-selling, repeat sales, and customer retention. Insurers can use privacy enhancing computation in a number of ways.   Usually, drivers buying insurance make a trade-off between data shared and premium discounts received from insurers. Often, it is not worthwhile for them to share data since the scoring on driving skills and other rules are stringent. Hence, eliminating privacy concerns can improve usage-based insurance (UBI). This can be achieved by generating synthetic data that helps design risk models. Additionally, there is always support from data providers in the ecosystem in the form of satellite data, demographic data, and so on. With a combination of these data sets, insurers can artificially generate synthetic data. Data collated from drivers' claims and associated classical insurance risk variables and telematics-related variables can be factored in to create synthetic data. It replicates real data and identifies individual behavior patterns or statistical properties in the sequence of events. These can support AI and ML models during simulations to generate insights.   Home insurers can leverage data for underwriting. However, the Central Consumer Protection Authority (CCPA) and Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations present challenges for data scientists and actuaries. They restrict the use of crucial data such as home addresses. This has been hindering modelers in creating optimal assessment of risk and offering better pricing. Insurance organizations can create synthetic geolocation data and home addresses and use them in simulations for floods, storms, fires, earthquakes, and so on. The pricing model based on synthetic data is as accurate as that based on real data. It offers customers better prices. Synthetic data can also be combined with some real data. This is true not just for addresses but also for replicating images of homes and accurately identifying features of a property such as condition of roof, existence of pool, and so on. Data from various market players in the ecosystem supports this method.   Electronic health records reduce the need for invasive medical examinations during underwriting. Several market players contribute toward making this data ready for consumption. They could be service providers at the point of care, laboratories, and data aggregators offering

health record platforms. They also include tech firms offering analytical insights and insurance organizations finally consuming the data for underwriting and optimal pricing. With active access, contributions, and sharing, all participants can boost predictive performance. To mitigate privacy issues, insurers can apply privacy enhancing technologies such as multiparty homomorphic encryptions and differential privacy. These technologies are evolving quickly and eliminate or restrict the need for sharing personally identifiable information. Normally, these data sets are shared to centralized pools during data aggregation, and analytics are derived from the pools. Insurance firms and large data providers must adopt privacy enhancing computation. This will facilitate the provision of services by many players in the ecosystem. It will lead to the creation of a large reservoir of data that is continuously updated, forming a rich source of analytics and insights. Insurers can realize several benefits such as accurate yet non-invasive medical underwriting, better pricing, and enhanced customer experience. All this will be made possible without the need for customers to share their personal or reconstructed data, either during aggregation or resharing. Privacy enhancing computation will bring business agility not just to orchestrators or insurance organizations, but also to other players in the ecosystem. Ecosystem collaboration for better customer value and CX in insurance Tech-powered Models in the Insurance Sector: Reclaiming the Unclaimed Property Ecosystem integration in financial services DeFi: Enabling Seamless Finance Transformation and Process Efficiency 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 ways to step up DevOps security

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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. 3 MINS READ Somen Das Solution Architect You have these already downloaded We have sent you a copy of the report to your email again. Balancing software innovation and security. Today's enterprises are accelerating the pace of software development for faster speed to market. They are deploying frequent software updates into the production environment to fuel continuous product innovation. While all this sounds good, balancing software innovation and security can become challenging. Especially when the software updates in a complex cloud-native architecture are too frequent. Chances of defects and vulnerabilities going undetected and entering the production environment shoot up. One big reason is that when deploying multiple pieces of code every day, application development teams don't have the time to test their code as thoroughly they would for monthly or quarterly release cycles. This has led to a natural evolution to DevSecOps, where security controls are built into the DevOps pipeline. Bring ideas to life securely with DevSecOps. While choosing and integrating security controls into the DevOps process, enterprises should consider: 1. Implementing dynamic assessment controls for applications and hosts Automated triggering of dynamic assessment is simple to implement and much better than manual testing of projects at random intervals. Dynamic application security testing (DAST) and vulnerability assessment (VA) of hosts can identify low-hanging vulnerabilities, such as configuration and authentication issues before the application is released for production. Most vulnerabilities stem from security misconfiguration. Automating the security scanning process by integrating DAST and VA scanners reduces risk by identifying more vulnerabilities and ensuring prompt remediation. DAST and VA scanners are the simplest DevSecOps tools to reduce maximum risks with minimal effort. 2. Moving faster with DAST, and component and container-level security controls Integrating security early on in the DevOps toolchain is critical for any organization looking to build a robust and secure modern application. The earlier the integration, the more time teams get to fix any significant security weaknesses—be it code, design, or operations. Start by getting the security, development, and DevOps teams to decide on which tool to integrate, where to integrate it, and how to react to resulting vulnerabilities. Most modern

security controls support automation and deliver results faster, eliminating wait times involved in manual testing. 3. Selecting the best security tools for DevSecOps When choosing a DevSecOps tool, it's easy for an organization to choose a highly rated tool and believe it can be the best fit. However, this is not always the case. Organizations should choose tools that suit their security environment. Here are four tips for getting it right: Bucket the right DevSecOps tools based on the purpose or outcome. Compare DevSecOps tools on the technological coverage they offer. For code review, look at both the current and future technology support and extendibility. Gauge the risk aspects. If your application manages sensitive information subject to regulatory audits, on-premise security tools are a good option. Otherwise, SaaS security solutions are a better choice. Go for solutions that provide ease of maintenance and administration—they are key to a successful DevSecOps implementation. Even the best systems can be difficult to maintain and operate without skilled subject matter experts. 4. Using Agile DevSecOps or other security automation tool set The best security tools today may not be the best in the future. To keep up with the evolving security landscape, organizations need the ability to quickly adapt to new tools and technologies. But migrating from one security tool to another can be complicated. That's why starting out with agile DevSecOps principles and having a trusted security partner who can automate the integration of security tools into DevOps workflows are crucial. 5. Adopting DevSecOps automation and orchestration Enterprises can look at automating the manual and time-consuming tasks of assembling security tools in the DevOps toolchain and getting a single pane of glass view of all the vulnerabilities scattered across various interfaces and reports. Organizations can create or invest in DevSecOps automation wireframes or platforms that allow simpler integration capabilities with existing and new security tools. This will also ensure that they can switch tools in the future without losing historical data, which is crucial to understanding how the security posture has evolved. Mitigate vulnerabilities and move ahead with confidence. DevOps teams can now spend more time innovating instead of performing manual tasks like detecting code quality issues and vulnerabilities. They can collaborate proactively and progressively to identify areas where security tools and processes can be introduced and improved like automating report generation. With DevSecOps and early identification of vulnerabilities, they can reduce risks significantly despite the widening attack surface due to increased adoption of cloud-native services, containers, more API-based applications, and microservices. What's more, DevSecOps ena DevSecOps is your key arsenal for enterprise security. Technologies and services associated with these trends have also started to mature, offering greater capabilities to secure digital businesses. Organizations adopting DevSecOps show improved speed and agility in developing innovative solutions for business without compromising security or compliance. This is because they create security-aware solutions and perform security tests as a part of the continuous integration and continuous delivery (CI/CD) pipeline. They also identify vulnerabilities sooner and use open-source libraries with greater assurance. Enterprise leaders, especially those managing security and risk, must become early adopters of DevSecOps, and build resilient organizations of the future. Securing Digital Assets with Enterprise Vulnerability Management 7 Key Factors to Build Efficient Enterprise-wide Cyber Resilience How Modernizing Cybersecurity

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Can digital twins mirror the brain, create off-planet economies?

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see the digital twin technology tip into wide adoption across organizations and industries. With utility as a decision-making platform and powering a range of highly customized use cases by industry, digital twins will be a foundational technology of the 2020s. Digital twin technology enables the creation of a real-time virtual counterpart of something in the physical world. With 20 years of advancements in AI, IoT, and other technologies, digital twins today have far-ranging applications, with potential for every industry. Where once they were mainly used in manufacturing, now a digital twin could be anything from an important component in an industrial plant to a human organ to an organization's office environment.   With their proven utility in existing industries, digital twins offer the potential to help organizations and society at large navigate upcoming changes to how we work and live. In fact, TCS used a digital twin to help plan the reopening of our offices in the late stages of the pandemic. As a futurist, I think synthetic biology is one of the most exciting and promising fields for digital twins. Synthetic biology, which involves using biology, engineering, and related disciplines to redesign biological systems, has the potential to massively improve human and animal lives, empowering researchers, scientists, and doctors to experiment and innovate more quickly. Using AI, VR, and other technologies, TCS' Digital Skin can emulate the physicochemical properties of human skin and test how new formulations of drugs get transported through epidermal layers, which in the past would usually rely on animal testing. Going a step further, researchers could hypothesize new chemical arrangements and test them much more quickly at scale, leading to results that would be impossible to achieve in the real world. Beyond the body, digital twins are being used to create smarter, more sustainable cities. The city of Los Angeles is employing digital twin technology to model transportation movement and activity of everything from micro-mobility, ride-sharing, and autonomous drones to better utilize and plan its mobility infrastructure. The city also plans to cut emissions by modeling the financial and technological path to zero carbon emissions for building owners and more. Digital twins are already helping organizations build better and more sustainable futures for animals, humans, and cities. So, what's next? The true value of digital twins is that we can use them to rehearse the future, not try to predict it. We know many of the challenges and opportunities that await humanity in the future. With digital twins, we don't have to fantasize about what they might mean—we can build a twin of a particular scenario using established data and practice what will happen. Soon, creating off-planet economies may be more than just science fiction. It's possible that the coming decades will see humans established across the solar system, mining the moon, colonizing Mars, and so on. When you think about the supply chain challenges we have seen during the pandemic, the enormity of managing industry off-planet becomes apparent. But what if we were able to know exactly what it would look like and what could go wrong by creating a full digital twin of this off-planet economy? Taking synthetic biology to its natural conclusion, we may eventually see whole-body digital twins created at birth. A person could have a digital twin 'living' alongside them at every stage of their life, evolving based on inputs and expected scenarios to predict the effectiveness of drugs and other therapies, and the impact of lifestyle choices such as diet, exercise, drinking, living in a certain area, etc. How many lives could be saved if your digital twin could warn you about a health crisis coming years down the road? The final frontier for digital twins

is thought. Digital twins started with machines, then moved to biology—is the next stage creating a twin of a human brain and replicating thought? One potential use case would be around managing mental health and stress. A twin of a human brain could predict cortisol levels and reactions to stress under different circumstances, simulating different mental states to identify which ones provide peak performance and well-being. The digital twin deserves recognition as a platform for successful collaboration in established industries, emerging fields like synthetic biology, and near-future applications such as off-planet economies.   Digital twins mean the potential for incredible, positive transformation in both business and society. Digital Twin Technology & its Role in Accelerated Product Development TCS Named a Leader in Digital Twin Services by Everest Group Industry 4.0 and the digital twin: Smart manufacturing beckons 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 the financial services industry can capitalize on NFTs

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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. Ruben Jacob Abraham Senior Domain Consultant, Banking, Financial Services, and Insurance, TCS You have these already downloaded We have sent you a copy of the report to your email again. In recent years, non-fungible Tokens (NFTs) have emerged as a promising innovation. Initially used by artists and creators to authenticate and sell unique digital assets, NFTs have since expanded to various industries, including the financial services sector. NFTs are digital tokens that represent ownership of a unique asset, such as art, music, or even financial instruments. The use of NFTs in the financial services industry has the potential to revolutionize how assets are traded and managed, offering benefits such as increased transparency, security, and efficiency. However, there is some uncertainty regarding the scale and pace of adoption of these digital assets, along with regulatory compliance concerns. The adoption of NFTs in the financial services industry will depend on regulatory and legal factors. Firms' technical knowledge of using blockchain-based assets will also play an important role. Further, anti-money laundering (AML) and know your customer (KYC) compliance will be crucial for financial institutions to manage proceeds from digital assets and ensure their safety. NFTs can prove to be a secure way for firms to record and transfer digital assets while protecting them from corruption or loss. It is still early days for NFTs in the financial services industry, and there is uncertainty surrounding their future. It will take time for firms to adapt and integrate NFTs into their existing systems. But with promising potential benefits, it is likely that we will see more experimentation in this space in the coming years. Financial institutions must decide on a comprehensive digital asset strategy. They should prepare to capitalize on the many opportunities that NFTs have to offer. Here are a few potential use cases. Tokenize account numbers as NFTs: Banks can tokenize account numbers as NFTs, with metadata as account descriptions and traits. This will enable them to provide clients with a unique and verifiable digital identity that can be used to access financial services and products. It can help streamline the onboarding of new clients, reduce fraud, and improve customer experience. Convert mutual funds into NFT bundles: Financial services institutions can convert mutual funds into bundles of NFTs to increase transparency and accessibility. Each NFT would represent a portion of the fund, allowing investors to buy, sell, and trade individual shares in a more liquid and efficient manner. This will also allow for greater transparency, as investors can track the performance of individual assets within the fund rather than just its overall performance. Offer tokenization services for physical and digital assets: Banks can offer tokenization services for assets such as intellectual property or physical land deeds. By creating an NFT that represents ownership of the asset, banks can provide clients with liquid and easily tradable assets that can be verified on the blockchain. This can unlock value for customers who may have

previously struggled to monetize these assets. Provide custody solutions for digital assets: Banks can leverage NFTs to offer secure custody solutions for digital assets such as cryptocurrencies, digital art, and music. NFTs will provide customers with an added layer of security and transparency, as the ownership of these assets will be recorded on the blockchain, making it tamper-proof and easily verifiable. Most NFT marketspaces do not require KYC. This creates a scenario where buyers and sellers do not know each other, increasing risks. Many countries, such as Singapore, are seriously considering the use of NFTs and have started implementing guidelines and best practices to prevent illicit activities. The Financial Action Task Force (FATF) has also been setting up standards during the last three years for NFT regulation. This had led to the creation of recommendations for virtual asset service providers in line with anti-money laundering and counter-terrorism financing standards. According to recent industry trends, more jurisdictions will be inclined toward including NFTs and cryptocurrencies as virtual assets or governing them under Money Service business laws. Gradually, as NFTs grow into a denomination of economic value, established laws will be required to make them specific and reliable to the banking and financial services industry. The key measures taken to control the effective usage of NFTs will remain similar to those of account opening and onboarding procedures for completing a customer KYC. They would primarily involve validating customer identity, understanding the source of funds and customer activities, and ensuring regular tracking of transactions. The potential benefits of NFTs are numerous. However, their risks and regulatory considerations cannot be ignored. Financial institutions must, therefore, take a proactive approach in formulating an NFT adoption strategy. They must be prepared to navigate the complex and rapidly evolving NFT landscape to stay ahead of the curve. Creating Engaging Experiences with NFTs and Digital Assets Moving toward a cashless society with crypto payments Digital Assets – A New Paradigm in Capital Markets How data analytics can change crypto investment forever 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 =====================

Cyber insurance for small and medium businesses

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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. 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. Sachin Sadashiv Deshpande 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. Sachin Sadashiv Deshpande Chief Architect, Banking, Financial Services and Insurance (BFSI), TCS You have these already downloaded We have sent you a copy of the report to your email again. In a predominantly digital-first ecosystem, everything, from opportunities to risks, occurs on the digital layer, including cyberattacks. One of the most significant data breaches in 2022 occurred at Medibank, an Australian health insurance provider, exposing approximately 9.7 million customers' personal information. As various countries have established data privacy regulations, businesses must adhere to stringent compliances or incur heavy penalties. Especially in the case of small and medium-sized businesses (SMBs), the damage is more severe compared to large companies in the event of an incident. On an average, SMBs spend between $826 and $653,587 on cybersecurity incidents, according to Verizon's Data Breach Investigations Report 2021. Given how crucial it is for SMBs to protect their businesses from such risks, cyber insurance policies have become a necessity as they allow them to transfer any risk from cyber incidents to an insurer. For cyber insurance providers, while the SMB segment has potential, it is relatively untapped. Some of the roadblocks to market penetration for SMBs are inherent challenges such as no standardization of loss data, coverage, and risk quantification. There is a scarcity of actuarial and underwriting data, which adds to the challenges in pricing the premium accurately for SMBs.   A significant number of cyberattacks are targeted at SMBs and this number is increasing. While almost all SMBs experienced loss of money, some of them reported damage to their reputation, resulting in a loss of clients or difficulties in attracting new talent. However, only a small share of SMBs have cyber coverage when compared to large enterprises. Compared to larger organizations, SMBs

have a dearth of resources like funding, subject matter experts (SMEs), and sophisticated technologies, making it difficult for them to invest in improving cyber resilience. For insurers, this means that to provide coverage to SMBs against cyber threats, they must improve the cyber resilience of SMBs and minimize the threat impact by taking proactive or preventive measures.   For SMBs, partnering with cyber insurance providers is much less costly than setting up in-house security infrastructure. Here, insurers can play a major role in providing bundled or add-on services with insurance cover. These services can be offered on a subscription basis to SMBs, based on their specific needs or perceived risks. There are different categories of services under prevention, detection, and response. Of particular importance, continuous monitoring services are designed to collect information on threats in real-time, and the same is fed to an insurer's risk SME for periodic risk monitoring and preventive action, if any. However, since security prevention service provisioning is not often an insurer's core competency, it is recommended that insurance providers choose a partner who will bring in the required expertise for such services. This will help the insurance provider to continue focusing on its business. Insurers must work with partners who can meet the scale of the SMB market and provide local support in different geographies. Through such strategic partnerships, insurers can educate their staff and increase awareness about cyber risks and vulnerabilities while extending the commercial advantage to SMBs. Insurers can also engage with brokers who have expertise in preventive services and offer them to SMBs along with insurance cover. Several insurance companies in the cyber insurance business are looking at attractive growth opportunities. However, only those providers that are equipped to help SMBs minimize cyber risks and work hand-in-hand with them during crises, will stand out in the race. While insurers cannot increase premiums beyond a certain limit to cover unknown risks, they must aim to stay ahead of the insured's risk and take any preventive action needed to minimize claims and improve profitability.   With increasing digitalization, SMBs are now more aware of the risks and exposures they face. This makes them more open to opting for cyber insurance coverage. Insurance companies are rightly positioned to introduce innovative products and address this change. For any insurance provider to succeed in the SMB market, a mere risk cover product is not enough. They must look at the overall risk and the ways to reduce it collectively. In order to stay profitable, it is important for insurance companies to move away from offering price-driven coverage to providing preventive or protection services along with coverage, thereby giving firms more value.   Cyber Insurance Regulations, a Step Forward Against Cyber Threats Cyber insurance Overcoming Cyber Insurance Challenges with AI/ML Techniques Cyber Insurance and IoT: Things to Consider for Better Risk Mitigation 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 TCS is global and admired

Highlights In this article TCS' global presence Six reasons why customers like TCS Superior value for customers Helping clients grow 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. Alistair Davidson 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. Alistair Davidson Content Strategy Lead, TCS North America You have these already downloaded We have sent you a copy of the report to your email again. Tata Consultancy Services (TCS) is a global firm—52% of its revenues come from the US, 32% from Europe. So, perhaps it's no surprise that TCS is one of the two major IT consulting firms ranked on Fortune's 2023 World's Most Admired Companies™ list. Altogether, 199 TCS customers also made the list of 324 admired companies. Many of them have awarded multiple contracts worth hundreds of millions of dollars to TCS because of their satisfaction with its services. With over 614,000 skilled employees, customers find that TCS often owns the skills and experience they need. And the staff is available immediately. TCS covers a wide range of services. It offers superior value to its clients by virtue of its experience across industries, pre-built offerings, and flexible architectural solutions that can be modified and delivered. Hot topics for its clients include (in alphabetical order): With over 614,000 skilled employees, customers find that TCS often owns the skills and experience they need. And the staff is available immediately. TCS prides itself on being able to deliver across time zones,

which means easier ways of guaranteeing support. That means development can often occur around the clock. For most clients, TCS is invisible to their customers but helps make some of the most important companies in the world more innovative. TCS enables them to leverage their resources and reduce costs. Importantly, it helps customers grow and transform their ability to gain revenues from new projects and businesses. TCS Named to World's Most Admired Companies List by FORTUNE® Magazine TCS Debuts on Forbes List of America's Best Large Employers TCS Jumps to 2nd Spot on CRN's Listing of Top Solution Providers Bombardier Selects TCS as Key Strategic IT Partner 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 Australian public services need a cloudburst

----- Arcticle source ----- https://www.tcs.com/insights/blogs/cloud-computing-digital-transformation-government-organisations ----- Highlights In this article The big question Why cloud? Cloud benefits Public versus private sector Looking ahead Key challenges About the authors 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. Shalini Mathur Dhinakar Gunasekar 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. Shalini Mathur Vice President and Business Head for public sector, Enterprise Growth Group, TCS Dhinakar Gunasekar Head, ANZ Public Sector Business, TCS You have these already downloaded We have sent you a copy of the report to your email again. The biggest questions need the boldest answers. That's why we're using our global scale, technology expertise, and collaborative spirit to move toward a better today and a brighter tomorrow, together. The technology sector is at an inflection point where 'cloud native' will quickly become the norm. As one of the most mature cloud markets in the world, Australia has been a forerunner and early adopter of cloud services in both public and private sectors. Let's explore how cloud can help accelerate digital transformation in government organisations/the public sector with our experts Shalini Mathur, Vice President and Business Head for public sector, Enterprise Growth Group, TCS, and Dhinakar Gunasekar, Head, ANZ Public Sector Business, TCS. What is the role of the cloud for businesses seeking to digitally transform? Prior to the previous federal election in Australia, an e-government policy was launched to accelerate and support the digital economy. It was recommended that organisations with insufficient IT infrastructure move to shared or cloud services. Since then, the Commission of Audit has taken this a step further by recommending the adoption of a cloud-first strategy, which has been well adopted by both federal and state government agencies and industry verticals across Australia. The use of cloud services is an important step toward simplifying IT services and eliminating duplicated and fragmented activity across different government agencies. What are the benefits of cloud adoption for Australian public services? The key drivers for cloud adoption and growth within Australia are agility and scalability, digital transformation, IT modernisation, and cost optimisation. The cloud offers unparalleled agility benefits and enables companies to take an idea to implementation dramatically faster than ever before. Cloud services, whether public, private, or hybrid, offer mature capabilities with rapidly growing features. The use of the cloud, especially hyper-scalable public clouds such as Google, Amazon Web Services, and Microsoft Azure, provides government agencies with industry-leading technologies that offer efficiency in time and money, in addition to opening up greater possibilities for innovation and improving service delivery for Australians. Private cloud, on the other hand, offers excellent environments for running certain workloads with higher security and/or regulatory requirements, if not all the benefits of a public cloud. How does adoption of the cloud in public services compare to the private sector? While large enterprises across all industries started adopting cloud largely as a means to achieve cost efficiencies and due to the strong impetus from government with the launch of the cloud-first strategy, for government departments and agencies providing citizenship services, the primary driver has been the shift in user expectations toward state-of-the-art digitally led services. But due to concerns around security and privacy and other factors specific to the public sector, the move had been slow as compared to other industry verticals until 2020. As the world went into lockdown, governments couldn't just shut down and had to find a way to continue to provide services by allowing their employees to work remotely

and services to be available digitally, which opened doors for cloud adoption at a rapid pace. The key drivers for cloud adoption and growth within Australia are agility and scalability, digital transformation, IT modernisation, and cost optimisation. The cloud offers unparalleled agility benefits and enables companies to take an idea to implementation dramatically faster than ever before. What does the future hold for the cloud in Australia? While the shift toward the cloud has been gradual over the past decade, the global pandemic has hugely accelerated this shift, as it became an essential tool for businesses to thrive while teams were displaced and working remotely. According to research by Gartner, the Australian infrastructure-as-a-service (IaaS) public cloud services market grew by 40.4% in 2020 alone and now generates a total of $1.4 billion in revenue, up 38% from the previous year's spend of $988 million. It is on track to exceed $3 billion by 2025, according to an Australian hyperscale cloud market study by Telsyte. What are the key challenges for cloud adoption for the C-suite? Although cloud technologies offer scalable, adaptable, and agile benefits along with immediate cost savings, there can also be significant security risks associated with their adoption. While cloud services can deliver a wide and powerful range of capabilities as their potential users are exceptionally broad, it is essential for any organisation to develop a framework to accompany their use. Identifying and implementing a business decision framework and best practise model will help ensure standardised use across a company. Ensuring that users have a thorough understanding of how and why to use cloud services and are trained to use new platforms will help to mitigate against non-malicious use and reduce the risk associated with malicious attacks. Making sure that the business use of cloud computing services has been clearly defined will also help to mitigate associated risks by making the right cloud choice. In addition to helping identify legacy infrastructures and making decisions around removing them, this approach will also help an organisation get the most out of such services and open up possibilities to reimagine businesses for the modern-day way of working, customer and client needs and expectations, and regulatory compliance. This will become increasingly important, as research from IDC finds that board members are playing a growing role in the decision-making process for public cloud adoption by integrating cloud strategy into broader business strategies to ensure that organisations realise the promised benefits of cloud. Public Sector Data Management and Protection in Australia TCS Answers the Big Questions on Cloud Technology Cloud migration strategy: How Foxtel transformed its digital landscape TCS Enterprise Cloud Platform: Accelerating Application Modernization 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 to get more from your data with better visualization

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areas that need attention as well as discover new patterns in data. For visualization to be impactful, it is important to make it effective and engaging. Effective visualizations are clear, interactive, and user-friendly. They communicate information briefly that enables users to extract actionable insights, identify trends and patterns, and find improvement opportunities through an easy data analysis process. Considering these needs, the basis for an efficient visualization design should be to prioritize the most relevant data, designed for focused user groups, and guided by core business goals. Through active participation in data discovery such as clicking, scrolling, and hovering, users can engage with data keenly and uncover insights that help in decision making. Let's look at six key design principles for effective data visualization Include clear labels: Labels define and qualify the data, and they should be clear and concise. Providing titles, headings, sub-headings, units, and data points in graphs makes the information self-explanatory. Use appropriate colors: Colors and gradients help highlight information and key messages—they differentiate and identify anomalies, outliers, and trends. In addition, make sure you select from the standard colors or color schemes defined by your organization. Look for ways to incorporate sorting: Sorting the data improves readability and helps the audience draw conclusions quickly, especially in tabular representations. Whenever possible, give users the flexibility to sort the data through different data attributes. Call out important KPIs and sequence the layouts effectively: Identify the important KPIs and place them at the top to give a quick overview of the data. Place common elements such as filters at the top to allow for faster navigation. Optimize for multiple devices: Users often access data on various devices such as mobile devices, laptops, and computers. Make sure the visualization layout is optimized appropriately for different devices that are being used by the target audience. Five techniques to make data visualization engaging An engaging visualization converts passive users into active participants. This increases their participation in the data discovery process and leads to improved interaction and engagement. The following techniques can make data visualization engaging: Always keep your target audience in mind: Understand the requirements of the audience that will be consuming the data, including their level of expertise in the subject and the depth of information they might find helpful. For example, CXOs may be more interested in summarized information rather than minute details. The better you understand your audience, the higher the odds of you conveying a clear and to-the-point message that has a lasting impact. Tell a story: Storytelling is presenting data in a visual manner that shows the entire narrative gleaned from the data analysis. It helps to efficiently understand business strategies and goals. Data storytelling simplifies complicated information so that the audience can engage with the content and make critical decisions quickly and confidently. Incorporate interactive elements: Leverage interactivity features of your data visualization tool to engage the users. Interactivity encourages exploration and helps to find answers to questions the viewer might have. Visualizations can be made interactive by including elements such as filters, parameters, and hyperlinks. A drill-down feature can allow the user to explore more detailed information related to a particular dimension, data point, or KPI without crowding the overall design. Keep visualization simple: Show only an adequate amount of information. Avoid using unnecessary gridlines, distracting visual patterns, redundant axes,

shadows, too many tick marks, or anything that causes clutter. If required, additional information can be included in tool tips. Optimize for performance: An effective and engaging visualization should not take long to load while opening, interacting with elements, or while refreshing data. Optimize to strike the right balance between visualization and performance. Data visualization plays a vital role in identifying and presenting key information with ease and simplicity. Following effective and balanced dashboard design principles will give business leaders valuable and actional insights and help them in accelerated decision making for business growth. Boost your business performance with data and analytics Adopting a User-first Approach to Develop Efficient Data Dashboards TCS Announces Global Alliance Partnership with Tableau TCS Launches Business Process Innovation, Simulation & VaaS 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 green is your cloud strategy?

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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. Blesson Gregory Cloud Consultant, TCS Australia and New Zealand You have these already downloaded We have sent you a copy of the report to your email again.   Australia is one of the most mature cloud markets in the world and has acted as a forerunner and early adopter of cloud services. It is now time for Australian businesses to leverage the benefits of sustainable innovation on the cloud. In this Big Questions blog post, Blesson Gregory, Cloud Consultant, TCS Australia and New Zealand, explores the sustainable benefits of cloud services. Leading cloud providers are enabling customers to reduce their impact on the environment by weaving in sustainability into their cloud services blueprint. They are reducing their carbon footprint and environmental impact through efficient design of their data centres at scale. Increased usage of renewable sources of power, constant updates to hardware to improve efficiencies, and recycling and water conservation at data centres all help in reducing the carbon footprint. Green possibilities of the cloud must be viewed from the lens of what is available by default from a cloud provider versus additional improvements and innovation that can be incorporated by cloud users. Enterprises must strategically adopt initiatives that deliver sustainability outcomes beyond the default green benefits of the cloud.   By virtue of their design, cloud services can reduce carbon emissions while facilitating sustainable innovation and research. A report by Nat Salhstrom on reducing carbon by moving to Amazon Web Services (AWS) shows that the infrastructure of AWS is more than three times more energy-efficient than the average data centre, and that continuous improvement in hardware is the key enabler for energy efficiency gains. Studies by Microsoft indicate that carbon emissions from their cloud service Azure are up to 98% lower than traditional on-premises data centres. Utilising circular waste management, 86% of waste from Google data centre operations is recycled, as per an article by Crystalloids. While these are the default benefits of adopting cloud technology, organisations using cloud services and service providers implementing cloud technology on their behalf must equally leverage the possibilities of sustainable innovation on cloud to achieve higher order sustainability benefits. This includes operating the cloud efficiently by choosing the right instance sizes, better software development practices, and application modernisation to use cloud-native services. Taking advantage of these benefits offered by cloud services requires investment in projects for application modernisation and building sustainable cloud solutions. This requires commitment from business and technology stakeholders to move away from old application architectures and legacy models of IT operations and management. Companies typically exhibit reluctance to embark on this journey due to risk and cost concerns. Building a clear modernisation roadmap along with a detailed business case will help businesses evaluate the true benefits of these initiatives and take informed decisions. Last year, a leading construction company in New Zealand partnered with Google Cloud to implement enterprise-grade cloud capability to run its mission-critical enterprise workloads in order to enable greater uptime and flexibility, develop its customer data strategy to create

an end-to-end understanding of customer needs and behaviours, and to respond quickly to market changes and opportunities. A key focus of cloud adoption was building a sustainable future by reducing carbon emissions and overall environmental impact. Similarly, a leading media company in Australia adopted AWS to drive greater agility across business operations, improve deployment times, increase availability and reliability of their applications, and reduce total operating costs. It is imperative to have a sound corporate governance strategy that aligns corporate performance with global responsibility. Cloud enables these goals by harmonising the growth and transformation aspirations of a business with positive environmental outcomes. Companies can no longer choose one over the other. According to news reports, 86% Australian industry leaders now see a positive connection between taking environmental action and profitability. Around 56% of Australian businesses now believe addressing environmental issues will be material to business results within the next five years. While the cost of entry for sustainability solutions may have been prohibitive, there is a surprising positive correlation between sustainability initiatives and profitability. According to news reports, 86% Australian industry leaders now see a positive connection between taking environmental action and profitability. Around 56% of Australian businesses now believe addressing environmental issues will be material to business results within the next five years. With sustainability at the front and centre for most business leaders, we are really seeing the fusion of technology and business strategy to support ESG targets. We are being offered a unique opportunity to reboot to a new era, an era where sustainability and prosperity are part of the same set of aspirations and success equation. TCS Answers the Big Questions on Cloud Technology TCS Supply Chain Management Services on AWS Cloud Cloud Innovation, Sovereign Cloud, and More – 5 Cloud Trends for 2023 Five-point Strategy for Efficient Cloud Operations 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 =====================

Take on uncertainty with viable enterprise design

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variety', proposed by Ross Ashby, which holds that in order to be efficaciously adaptive, the internal complexity of a system must match the external complexity. The journey would involve planning before, during, and after recession. The enterprise is a living entity, so work towards establishing a cost-optimal structure by trying to minimize damage to people resources. Retaining employees and encouraging cross-skilling and multi-tasking would help the organization keep costs low during the recession period and prepare for the post-recession period. The change in business environments from uncertainty to growth has its own challenges. Employees need to be mentored to change their mindsets from one of caution to that of optimism. This transition has to be enabled using a multi-pronged approach. Involve the employees in the planning process with constructive inputs flowing from them. Keep them updated on the key business developments that will shape demand. This will help them understand and appreciate the situation and the demands of business. An inclusive journey will help establish a smooth transition from uncertainty to growth. The change in business environments from uncertainty to growth has its own challenges. Employees need to be mentored to change their mindsets from one of caution to that of optimism. Training is important in just about every field, but more so in IT, where technology changes at a rapid pace. Cross-skilling of employees is essential to safeguard the organization's competitive edge. Knowledge sharing could enable skill improvement at minimal cost to the organization. The above steps can help in boosting motivation and retaining employees. This is important because the cost of acquiring people with the relevant skills could be very high. Besides the above, enterprises should work on process optimization/innovation and improving collaboration between teams. The idea is to illustrate that all of Beer's endeavors are precise instances of cybernetic ontology of unknowability and becoming: a perspective that acknowledges that the world around us continues to amaze us and that it cannot be controlled by knowledge. The essence of Beer's efforts was thus to build systems that could adjust smoothly to ecosystems they could not completely control. How to Manage Margins Better with Strategic Cost-cutting Digital supply chain: Enabling transformation and revenue growth TCS Evaluates NWC's Oracle ERP Platforms for Smooth Transformation TCS Positioned as a Leader in IDC MarketScape for GCC Business and Industrial IoT Services 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 ======================

Booster shot for pharmacies: application modernization on cloud

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performance, and serve patients better. Elevated experiences for both patients and pharmacists The benefits are many. Imagine millions of physical and electronic prescriptions being processed in milli-seconds. This rapid speed of prescription processing is already happening with the combined power of cloud and AI technologies such as computer vision, and optical character recognition (OCR). Patient drug refill process can be further improved using automated label scanning on the refill bottle and automated verification of the drug image against a library of branded drug images. Then, there is better matching for patient instructions. Electronic prescription (eRX) information received from employee health record (EHR) systems can be automatically extracted, improving accuracy by up to 80% over information retrieved from legacy systems. Pharmacists and technicians can focus on engaging better with patients as they don't have to unduly worry about things like duplication of patient data or manual generation of prescriptions. An AI-ML solution can identify duplicate patient data and either merge or purge duplicates using batch processes. Up to 60% of prescriptions can be generated automatically without their intervention using OCR on physical prescriptions and natural language processing on electronic prescriptions. There's more—with a centralized database, companies can provide a consistent experience for users and customers across the web, mobile devices, and physical stores. And by moving processes to a web or mobile application, patients can get the care and support they need in the comfort of their own homes, while also allowing technicians to provide that support remotely. All of this translates into reduced operational costs and an elevated experience for patients as well as pharmacists and technicians. Legacy application modernization: Things to keep in mind When considering the modernization of legacy applications in the cloud, here are some factors that pharmacy companies need to consider: Overall approach: Choose the modernization approach you want to take—a phase-wise modernization or moving all of your applications to the cloud at one go. Phased or big bang depends on your risk-taking ability, preparedness, and the speed at which you want to realize business value. Co-existence strategy: Build a strong co-existing strategy, so that both the new and old systems can run simultaneously until the fully modernized applications and systems are rolled out. Offline mode enablement: Plan a way for essential features to be available in a store even if the store gets disconnected due to network issues, internet outages, or some other failure. Security and compliance: Ensure that the modernized pharmacy applications meet industry standards and comply with data privacy and other regulatory norms. User experience and store rollout: User buy-in is critical to succeed in application modernization. So, create applications that are easy to use and intuitive. Also, roll out to stores in phases to minimize transition risks. Integration: Design an interoperable system that integrates with external healthcare applications, such as electronic health records, federal drug database, allergic systems, and patient medical record systems. Deliver high-quality care with cloud-based platforms As the healthcare industry continues to evolve, modernizing pharmacy applications will be essential for delivering high-quality care and achieving better outcomes for patients. By leveraging the capabilities of cloud-based platforms such as Microsoft Azure, healthcare organizations can make significant strides toward improving patient care and keeping pace with the changing needs of the industry, while also reducing costs and improving operational efficiency.

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Four ways to rev up the EV play

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(EVs) is the lack of sufficient fast-charging stations for long-distance travel. While new business models emerge, a lot more needs to be done to change the status quo. By 2030, EVs are likely to account for more than 60% of vehicles sold globally. As the number of EVs on the road increases, the EV-per-charger ratio can help assess the feasibility of the charging network. According to the International Energy Association (IEA), the ideal EV-per-charger ratio is 10 EVs for each charging connection. However, in most markets, from Europe to the US and India, sales of EVs have surged in the last year, and the number of EVs to a charger is far higher than the recommended ideal. To be sure, industry lines are blurring, and we are seeing some uncommon alliances come together to fulfill a pressing need. For instance, retailers like Kruger, Ikea, and Starbucks are doubling up on EV charging stations to offer customers a charging facility while they shop or grab a coffee. Across industries, from energy and utilities to hospitality, companies want to be a part of the emerging electric vehicle ecosystem. Examples include Duke Energy's park-and-plug program, which assists business customers with the installation of direct current fast charging (DCFC) stations, and hotel chains like Hilton and Holiday Inn, which provide electric vehicle owners with charging facilities. Yet, we have just scratched the surface: we still have a long way to go as electric vehicles and charging stations become the norm with easy access to fast-charging stations. There are four easy ways to rev up the EV play.   Bring down the cost of installation To accelerate the charging station penetration, it is important to reduce the upfront cost of installing EV chargers. The cost of EV chargers is determined largely by the time it takes to charge or the level of charging required. There are three levels of charging—level 1, level 2, and level 3. The fastest, level 3, is the most expensive to install. Installation costs can run as high as 200% or more of the total equipment cost. Other costs include permits, cabling, location, and software. Partnership models with charge point operators (CPO) and utility companies can be leveraged to share capital expenditures. Of interest are initiatives like automaker Nissan partnering with European electricity companies like E.ON, EDF, and Enel on the e-mobility opportunity in countries like the United Kingdom, France, Belgium, and Italy. And utility company Tata Power is taking the lead in installing EV chargers in collaboration with different partners across India. By 2030, EVs are likely to account for more than 60% of vehicles sold globally. As the number of EVs on the road increases, industry players need to come together and collaborate to enable long-distance travel.   Government intervention will improve EV infrastructure Charging an EV to run 100 miles (about 160 km) can take anywhere between six minutes and 26 hours, depending on the charger type. For instance, direct current fast chargers can charge an electric vehicle from zero to 80% in 20-60 minutes but are available at only 12% of America's EV charging stations today. Prevalent are the level 2 chargers (which take 4-10 hours to fully charge a vehicle) and level 1 chargers (which take 40-50 hours from empty to full charge). Level 2 and level 1 chargers will continue to be dominant in the foreseeable future, presenting an opportunity for players across retail, food, and hospitality to partner with charge point operators. But there is a pressing need to improve the infrastructure for faster charging. Government intervention with incentives such as tax credits to help offset the cost of installation will spur this shift.   Make EV chargers more accessible EV chargers can be made more accessible and affordable through greater collaboration between

urban planners, building developers, and electrical-equipment suppliers. In the US, the Clean Cities Coalition Network, a resource of the US Department of Energy's Vehicle Technologies Office, has 75 active coalitions looking to implement alternative fuels, fuel-saving technologies and practices, and new mobility choices. These coalitions comprise businesses, fuel providers, vehicle fleets, state and local government agencies, and community organizations. It is essential to standardize the charging infrastructure In February, Tesla announced that it will partially open its proprietary charging network to non-Tesla consumers. Tesla has the largest fast-charging network globally. The move is significant, as other players with proprietary systems may follow suit by opening up for collaborations. The pressing need is for the EV ecosystem to expand and for players to come together to standardize the charging infrastructure. To accelerate the adoption of electric vehicles, the entire ecosystem play has to come together with greater collaboration, standardization, and even government intervention. Build resilient, sustainable travel value chain with harmonious ecosystems PostNord Revolutionizes Truck Utilization Connected Ports: Planning Optimal Solution to Make Shipping Smarter How travel companies can build delightful digital experiences 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 =======================

Improving battery affordability in electric vehicles

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4 MINS READ Sanjay Dulepet Global Technology Head, Smart Mobility and EV Ecosystem, TCS You have these already downloaded We have sent you a copy of the report to your email again. Battery electric vehicle (BEV) manufacturers are trying to lower the cost and improve the driving range on a single charge. Electric vehicles (EVs) have come of age in the last few years, driven by an urgency among governments worldwide to reduce carbon emissions in the automotive industry as part of their broader effort to cap pollution. What has helped the growing popularity of electric vehicles is their increasing affordability as the cost of batteries have come down. The battery pack for battery electric vehicles (BEVs) used to cost over $1,100 per kilowatt hour (KWh) in 2010. Now BEV batteries costs are inching closer to $100 per kWh, making the cost of EVs comparable to traditional cars in affordability. Interestingly, EVs preceded the automotive industry and date back to the 1800s. They never, however, became mainstream due to intransigent behavior of consumers, lack of preparation of automakers, incomplete product infrastructure and high costs, among a plethora of factors. But all that is history. And now, the renewed interest in EVs is for real. It is catalyzed by an all-electric agenda with a radical focus on innovators and early adopters who prize a brand's performance and image above potential detractors such as high cost and charging inconvenience. Government and state subsidies, beneficial policies for EV makers, incentives for buyers, suppliers and consumers are also helping the rapid adoption of EVs. The BEV disruption is the most significant opportunity for e-mobility businesses that strive for substantial profits and growth. The holy grail is to find a solution to get the battery price down and the driving range up, on a single charge. This is a must to surpass the critical tipping point for BEVs or fully electric vehicles with rechargeable batteries and no gasoline engines. The BEV industry is approaching the battery challenge by embracing a cost leadership strategy. Incumbent battery manufacturers, automakers, and new entrants are using disruptive technologies and evolving battery chemistries to enhance energy density and charging cycles. The battery industry is investing heavily in innovation and focusing on cost minimization by mitigating raw material and supply chain risks. Gigafactories, which mass produce batteries in terms of KWh, are producing an estimated 30 to 40 gigawatt hours (GWh) of batteries and battery packs per year, closing the gap in the supply chain of EV batteries. The global battery production capacity could reach over 6,000 GWh by 2030

and help achieve economies of scale. To drive up EV sales, easy, affordable access to public charging infrastructure will have to be ensured. Today, most EV charging takes place at residences and workplaces. Consumers will increasingly expect the same services and convenience for EVs as they do for conventional vehicles. In the European Union (EU), the 2014 Alternative Fuel Infrastructure Directive (AFID) recommended that EU member states reach 10 EVs per public charger by 2020. However, in the United States, the number of EVs on roads outpaced the number of public charging points, with about 18 EVs per charging point in 2021, and in the EU, the average EV to charger ratio was 14. China is faring better, with an average of seven EVs per charger, bringing the global average down. The BEV automakers are addressing charging awareness through in-car navigation capable of rerouting to the nearest charging stations that aren't as busy and account for other recharging needs. Currently, most governments globally, from the US to UK and India, are incentivizing automakers to scale the manufacturing of electric cars. However, government interventions are also required to ensure easy access to charging infrastructure. There is a need to regulate and standardize the format of charging ports, connectors, and equipment to avoid creating redundant, largely incompatible networks and charging gaps. A BEV customer is driven by a strong sense of practicality. And the key factors that dominate the decision-making are cost, range, and environmental consciousness. As BEVs demand more energy from the electric grids, their net environmental benefit depends on the power source used to charge them. The electric grid we depend on runs on a mix of fossil fuels and renewable sources, fulfilling the base load and peak demands. A greener world demands a more distributed grid where individuals or companies can generate, store, and sell electricity through solar plants or the batteries in their EVs serving as virtual power plants. Lastly, given the large number of BEVs hitting the roads, their batteries will soon hit their end-of-life and it is important for them to be a part of a circular economy. Critical materials inside batteries are highly amenable to end-of-life recycling and can feed back into the supply chain. The recovery and recycling industry must play a vital role in a future sustainable society and economy. Battery recycling in the BEV space can give batteries a second life making them more environmentally friendly. Smart mobility: Shaping business models of the future The Role of Utilities in Transport Electrification in the US TCS Neural Manufacturing: Building a Connected Ecosystem Can digital twins mirror the brain 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 =====================

Embracing cloud-enabled sustainability in manufacturing

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and how manufacturing, considered a top polluter accounting for 36% of global emissions, is embracing this change. Sustainability – a compliance or business imperative? Since the industrial age, manufacturers have been innovating and adopting new technologies according to changing market demands. Now, as the manufacturing industry continues to rapidly evolve, keeping sustainability at the core, organizations are driving sustainability imperatives to reduce costs, increase scale, and gain visibility throughout their supply chains. Leading manufacturing organizations are taking big steps to reduce carbon emissions across their value chain and, as a result, what was initially perceived as a reporting and compliance exercise has today become an absolute business imperative. One of the most important reasons that has led companies to opt for sustainability is the pressure that governments, regulators, banks, and environmentally conscious consumers have put on them. How manufacturers can control their carbon emissions. Most manufacturing processes contribute directly to one or more of Scope 1, Scope 2, and Scope 3 emissions. As manufacturers continue to realize the need to reduce carbon emissions and address sustainability issues, understanding the corporate footprint and different types of emissions will help them achieve their climate change goals: Scope 1: owned, non-electrical fleet of vehicles are a few examples that directly contribute to Scope1 emissions. While Scope 1 emissions are unavoidable in most manufacturing processes, manufacturers can look to optimize the performance of equipment they own, thus lowering fuel consumption and thereby the direct impact on Scope1 emissions. Scope 2: indirect emissions arising from the purchase of energy for heating and cooling and lighting. Increased use of air-conditioning, heating, or lighting at a facility such as a large office building, leads to an increased indirect emission as the power utility needs to burn more fossil fuels to generate the energy to meet the increase in demand. It is estimated that both commercial and residential buildings contribute to 17.5% of global GHG emissions. Regulating energy consumption for heating, cooling, and lighting will substantially reduce Scope 2 contribution. Scope 3: Solving Scope 3 carbon measurement requires a value chain–oriented approach because up to 90% of an average organization's resource footprint occurs in the value chain—either upstream (through the supply chain) or downstream (in the product use phase) of its own operations. The problem is that most organizations don't currently have access to the data they need to measure their impact in this space. Without data, they can't know the full impact of each supplier in their supply chain or understand the cost and climate impacts of changing suppliers. Sustainability, considered a non-negotiable strategic requirement for businesses, will help manufacturers operate successfully in the future. Today, most successful manufacturers recognize that sustainability determines how a product is produced, marketed, and purchased. The following steps help manufacturers drive sustainability across their entire supply chains: Minimize carbon emissions: Replace fossil fuels with lower carbon energy sources such as biomass, recovered heating, and heat pumps to reduce direct emissions. Manufacturers can switch to renewable energy sources such as solar and wind energy for reduced indirect footprint from energy consumption. They can move core IT systems to AWS cloud to reduce energy consumption as efficient processors and renewable energy power AWS data centers. Optimize energy and water usage: Deploy energy management systems that can not only monitor energy consumption with

utmost accuracy but also adjust and optimize it based on real-time consumption patterns. Cloud-based, IoT-powered systems can collect energy and water consumption data at scale and AI/ML algorithms running on cloud can optimize the consumption of energy and water resources. Reduce wastewater generation: Leverage cloud-hosted IoT-based systems that can track and reduce the generation of wastewater at scale. Implement sustainable supply chains and sourcing practices: Work with suppliers that are willing to take positive steps towards a green supply chain, promote circularity by re-using and re-purposing assets as much as possible, optimizing fleet operations. Cloud-hosted supply chain management systems can help monitor consumption and deliver greener supply chains. To drive sustainable imperatives, manufacturers should integrate sustainable efforts across all levels of products, processes, and systems. These sustainable practices will not only lower costs accrued from reduced consumption but also provide significant financial and environmental benefits. Embracing the cloud is helping enterprises deliver on new commitments: carbon reduction and innovation at scale. As a result of consumer demands and sustainability regulations, manufacturers are including sustainability as a business and strategic focus area. One of the most effective ways to deal with carbon emissions is to shift to cloud. Cloud data centers are known to use less energy compared to on-premise solutions. Cloud-based services are also known to reduce energy consumption by streamlining the production cycles of manufacturing units. Companies can also adopt cloud solutions to control their emissions and reduce the environmental impact of business operations. For instance, IoT solutions such as TCS CleverEnergy™, help manufacturers monitor and optimize their direct energy consumption. They can also track and mitigate supplier-sourcing risks with digital solutions powered by sustainability data ecosystems, like TCS Envirozone™. This aids procurement decisions for sustainable supply chains and promotes recycling and maximum re-use of materials and products to help the circular economy. What's more, companies can monitor and optimize the performance of boilers and turbines with cloud solutions like TCS IP2™. This results in reduced consumption of fossil fuels and lowered carbon emissions. The future manufacturing enterprise — Sustainable by design TCS Envirozone™: Mitigate ESG Risks with Sustainability as a service TCS DigiFleet™: A suite of solutions for efficient fleet operations 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 insurers will be key to a just net zero transition

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the need for claims assessments. Other innovative product structures include double triggers and usage-based products. Insurance companies are funding research that shows, for example, that protecting and restoring mangrove forests can build community resilience in the wake of coastal flooding, which impacts 15 million people. Cost-benefit analysis in the Caribbean region, which includes Florida, shows that this nature-based approach to financing can save $65 billion. Further analysis is being conducted to determine the cost of protecting mangroves to develop policy threshold limits for parametric-indemnity payouts. Similarly, in 2019, the first coral reef insurance policy was developed to protect and preserve reefs in Mexico. Since then, public and private partners have worked to develop the Mesoamerican Reef Fund (MAR), which has extended the reach of parametric insurance from Mexico to Honduras. To scale up these innovative insurance products, insurers must adopt a two-pronged approach. First, they must assess their exposure to climate-related risks and then adopt nature-based strategies for insurance or reinsurance. This entails updating underwriting and risk assessment models.   A timely and just net-zero transition would require capital allocation and insuring low-carbon solutions. For instance, insurers must underwrite risks for solutions such as carbon capture and sequestration (CCS) and carbon-infused cement. Often, insurers struggle with assessing long-term liabilities due to climate, environmental, regulatory, social, and market risks associated with these solutions. To understand and price these risks and help accelerate the testing and deployment of such solutions, insurers must advance their risk advisory capacities. This would allow them to ensure long-term price stability of premiums. Additionally, insurers must leverage their risk assessment and management expertise to promote transparent policies among stakeholders in the value chain. This will help achieve gradual emission reductions. The International Energy Agency emphasizes sustainable investments. It estimates that global clean energy investments need to triple by 2030 for the global community to achieve net-zero emissions by 2050. As asset owners and institutional investors, insurers can do more than divest from fossil fuels. They can redirect capital toward nature-friendly and socially sustainable products, companies, and solutions. In the US, joining platforms such as the Principles for Responsible Insurance, Net Zero Asset Owners Alliance, and the Net Zero Insurance Alliance will help insurers demonstrate commitment, transparency, and accountability, helping them catch up with EU and UK counterparts. Data consistency is crucial for redirecting capital to sustainable investments. However, currently ESG data lacks standardization. Additionally, companies may excel in the environmental aspects of ESG but struggle in the social aspects. For instance, a solar firm might have a high environmental score as it provides green energy, but its social score could be low due to questionable labor practices in its component factories. Insurers also face data accessibility challenges when outsourcing investments to multiple asset managers. These managers often use different sustainability assessment methods, resulting in inconsistent information across asset classes. To address this, investment managers should develop proprietary ESG measurement tools for investing in various assets.   Despite data inconsistencies and greenwashing claims, insurers and their investment managers can conduct rigorous ESG due diligence to support just energy transition investments. This can be backed by an advisory approach and

artificial intelligence and machine learning technologies. Insurers must incorporate just transition considerations to avoid widening the insurance protection gap. This gap can occur due to coverage restrictions or when the industry's innovation of protection products and risk advisory services lags behind the demands of the transitioning economy. For instance, only 25% of climate-related catastrophe losses are currently insured in the EU. The percentage of uninsured losses could increase in the medium to long term as repricing of insurance contracts in response to increasingly frequent and intense climate disasters may lead to such insurance becoming unaffordable. In conclusion, insurance companies in the US market are proactively leveraging opportunities to invest in the transition to a low-carbon circular economy. However, the industry must ensure that climate and social justice goals are achieved in a transparent and accountable manner.   Insurance Solutions and their Role in Building Climate Resilience Financial enterprises driving green innovation Managing the Impact of Climate Change on Financial Institutions Future of Insurance Agencies: Transforming to Stay Relevant | TCS 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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Four strategic steps to greener data centers

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5 MINS READ Vani Kalra Product Manager You have these already downloaded We have sent you a copy of the report to your email again. With expanding data center footprints, companies need to balance their business and sustainability goals. Fast-paced digital transformation and the rising adoption of emerging technologies such as artificial intelligence (AI), internet of things (IoT), machine learning (ML), virtual reality (VR), and blockchain have led to an exponential rise in data generation, resulting in expanded data center footprints across the globe. It is estimated that by 2025 175+ zettabytes of data would be generated, stored, and processed. The data center market is growing rapidly, underpinning the digital economy. While this is promising, it's estimated that data centers will consume as much as 1% of global electricity, leading to an increase in greenhouse emissions. There is a compelling need for organizations to strike a fine balance between supporting business requirements and fulfilling their sustainability goals. Governments across the world are implementing new regulations to reduce greenhouse gas emissions and achieve carbon neutrality. Some have put in place financial incentives and subsidies that encourage businesses to adopt environmental-friendly practices. Europe's Climate Neutral Data Centre Pact, signed by 100+ European data center operators and associations, outlines aggressive data center efficiency and renewable energy goals. The involvement of these firms that account for over 90% of the data center capacity available in Europe represents a significant endorsement of the pact and the industry's commitment to becoming climate-neutral by 2030. Companies are often fraught with multiple challenges during their transition to green data centers. Although companies are taking steps towards net-zero goals, many struggle when upgrading to green data centers. From a dearth of expertise to the lack of clear regulations and standards, the challenges make it difficult to define and measure strategic green data center practices and technologies. Some of the key challenges are: In many enterprises, there are only incremental changes to existing technology. These changes revolve around hardware upgrade rather than a holistic vision that can drive green DC adoption. This adds to the complexity in DC management. Adopting a policy of green IT sourcing requires changes from the top down. With the exponential surge in data volumes, there are challenges in devising the right energy policy and strategy. What is more, the fear and anxiety of downtime due to dependency on a sole source makes adoption of green DC a non-starter. Steps to green data centers Making data centers greener is now an imperative with increasing pressure on companies to become more sustainable businesses conscious of their impact to the environment. Here are four steps to do that: Implement power management systems that automatically shut down or reduce power usage of idle servers and other IT

equipment. This will reduce overall energy consumption. Monitor energy usage to identify areas for improving energy efficiency and reducing carbon footprint. Deploy energy-efficient technologies—such as low-power servers, light-emitting diode (LED) lighting, and efficient cooling systems—to reduce the energy required to support IT operations. Use renewable energy sources, such as solar or wind power, to meet energy needs and reduce reliance on fossil fuels. For companies that don't own data centers and depend on colocation datacenter or cloud services provider, they should choose the providers that use renewable energy sources and greener data centers. Harness the power of emerging technologies for green data centers. The objective of building green data centers is to create more sustainable businesses and a brighter future for all. Reducing dependency on power, energy, and cooling resources is key. Here, utilizing innovative technologies to support operations can go a long way in creating a greener environment. Server and storage virtualization: Allows multiple virtual machines to run on a single physical server, reducing the number of physical servers and hardware required to support operations. This helps improve the utilization and efficiency of existing hardware, and reduce energy consumption and environmental impact. Containerization: Containers deploy applications faster, reduce data center space and improve operational efficiency. Cloud computing: Provides resources with on-demand access without the need to own and maintain physical infrastructure. This reduces the energy and resource requirements of IT systems and associated costs. ML and intelligent monitoring: Optimizes data center performance through analysis of energy consumption management and infrastructure including cabling, power and cooling infrastructure and prediction of energy consumption needs and scheduling of timely maintenance. Edge computing and IoT: Boosts energy efficiency as data can be stored and processed closer to users, reducing latency and improving performance of DCs. By adopting green data centers, companies can reap significant benefits. For instance, Google has implemented a few of the green data center practices, which have resulted in energy savings of up to 40%. The larger benefits that companies can realize include cost savings, improved efficiency through the effective utilization of IT resources, increased productivity and reduced waste. What's more, these changes can enhance a company's reputation, brand, and public image while also attracting incentives from the government in developed countries. Get ready to go green and tread the path to sustainable data centers of the future. TCS Clever Energy™ Adopting Green IT Framework for Organizations' Sustainability Journey TCS CognixTM Platform: Building Service Resiliency & Business Agility Sustainability – The Only Path Forward to Build Greater Futures 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 ======================

Reimagine digital transformation with the cybersecurity mesh

Industry Banking Services Transformation: Unlocking Exponential Value Unlocking Exponential Future Growth in Capital Market Firms Reinventing the Insurance Industry with a Digital-first Strategy Solution TCS Consulting Services to Achieve Success in the Digital Era Highlights ON THIS PAGE Introduction Smart identity management Zero trust security Adopt security analytics Secure with DevOps Conclusion 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. Bijesh Roy 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. Bijesh Roy Enterprise Architect, TCS BFSI Digital business unit You have these already downloaded We have sent you a copy of the report to your email again. Digital technology adoption and innovation are crucial for firms to stay competitive in the banking, financial services, and insurance (BFSI) industry. Institutions are embracing boundaryless innovation and collaboration through methods such as hybrid or multi-cloud adaptability, B2B interaction, software as a service (SaaS) collaboration platform integration, and edge computing to tackle business challenges and enhance customer collaboration. At the same time, the idea of a safe network security perimeter is fading, giving rise to the necessity for a composable, flexible, resilient, and scalable security mesh ecosystem. The widespread adoption of

digital processes, technologies, and customer channels has expanded the IT perimeter and complicated the security architecture of financial organizations. This has led to an increase in cybersecurity threats such as data breaches, fraudulent activities, and ransomware attacks, resulting in significant financial losses. In 2022, an American commercial bank failed to protect the personal data of its customers, leading to a lawsuit. Similarly, in 2021, a US-based insurance company, a major US insurance company, suffered a ransomware attack and was required to pay $40 million to regain data and network control. Several surveys indicate that over 50% of financial services organizations experienced at least one ransomware attack in 2021, and these numbers are expected to multiply annually. Consequently, composable security has become crucial for addressing integration patterns and IT threats. The cybersecurity mesh model's defense mechanism provides strong security by allowing for easy adaptability through modularity. Here are some elements of the model. The distributed identity fabric has replaced centralized user authentication with multi-factor authentication (MFA). This has strengthened security for banks and capital market firms. It has also enabled identity management across multi-cloud platforms, streamlining identity access management (IAM) for financial institutions and mitigating fraud risks in transactions. Several banks have adopted the distributed identity fabric to enhance security measures and protect customers' data during online transactions. For instance, a multinational financial services provider based in the US has implemented MFA using biometric factors such as fingerprints and facial recognition, in addition to passwords, to authenticate its users and strengthen identity management The backbone of the cybersecurity mesh is the zero trust security principle. It is a framework that assumes no constant network perimeter, allowing for local, hybrid, multi-cloud, or on-premise networks. A composable cybersecurity mesh model with zero trust is essential for modern organizations. Banking and financial services customers across the globe are embracing multi-cloud platforms to access the best services from various providers, leading to a rapid adoption of the zero trust security framework. a Dutch banking giant recently collaborated with Microsoft and HashiCorp to implement the zero trust security framework to enhance security within its organization. Banking and financial services organizations require robust security systems to handle real-time data from network tools, applications, and IT infrastructure. These systems collect, aggregate, and analyze data to enable real-time monitoring, detect cybersecurity threats early, and prevent financial losses. In order to achieve the highest security analytics capability, financial organizations supplement platform-provided analytics by integrating with third-party tools. A large bank in Denmark, deployed deep learning-based fraud detection algorithm to enhance the security of their payment system. DevOps integration enables streamlined deployment of configurations and policies across environments, ensuring consistency. The cybersecurity mesh model, when coupled with DevOps, promotes modularity and agility. Integrating security scans into DevOps tools allows for early detection of security risks, reducing cybersecurity threats in initial stages. These requirements are crucial for financial organizations to enforce the highest standards of security for their applications. An American financial institution has set a precedent by revamping its DevOps platform to achieve agility and impose high-standard automated quality checks for its products. The cybersecurity mesh model is

crucial for modern BFSI organizations seeking a composable security architecture to meet their present and future needs. Traditional enterprise security approaches fall short in addressing the rapid digital transformation in the BFSI industry. Therefore, firms must review their current security standards and adopt the key principles of the security mesh model. Embracing a Zero Trust Model for Enhanced Enterprise Cybersecurity Leveraging Technology in Education to Protect Mission-critical Data Leveraging Technology in Education to Protect Mission-critical Data How Modernizing Cybersecurity Empowers Business Growth 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 =====================

Metadata management from storage to integration

----- Arcticle source ----- https://www.tcs.com/insights/blogs/streamlining-metadata-management-from-storage-to-integration ----- Industry Patient-centered Care Models Taking Center Stage in Life Sciences Solution TCS ADD™: A Suite of Modern and Open Technology Platforms Highlights On this page Metadata storage and management Metadata validation Metadata mapping Metadata integration Summing it up 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. Salman Uddin 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. Salman Uddin Marketing Lead, TCS ADD™ You have these already downloaded We have sent you a copy of the report to your email again. Metadata is critical to pharma organizations as it enables effective management and understanding of data. However, managing metadata can be a daunting task, especially for large organizations with vast amounts of data. This is where a metadata repository comes in handy. A metadata repository refers to a centralized database that holds information about data elements and their relationships. When integrated with artificial intelligence (AI) and automation, it can streamline metadata and set up clinical studies. Accurate and organized metadata storage is the first step toward ensuring a successful clinical trial. In the pharmaceutical industry, clinical trials generate a vast amount of metadata. Managing this metadata efficiently is essential for compliance, traceability, and quality. A metadata repository provides centralized storage where metadata can be stored, organized, and accessed with ease throughout a trial's lifecycle. This repository acts as the sole, authoritative location for all the clinical trial metadata. It ensures data consistency, accessibility, and version control, allowing all stakeholders to easily locate and retrieve the metadata when required. After storing the metadata, it becomes necessary to validate it to ensure its accuracy and consistency. Validation can be tedious and time-consuming. However, a metadata repository can significantly reduce the validation time and effort. It provides validation rules and automated checks by creating standardized metadata definitions and schemas. This ensures the consistency of all metadata and facilitates its utilization across various studies. Metadata repositories can automatically apply industry- or sponsor-specific metadata standards to each data element. In addition, metadata repositories can be used to analyze the data and check for any errors. In clinical trials, data is obtained from numerous sources and stored in diverse formats. Metadata mapping harmonizes data structures and establishes relationships between the elements to ensure consistency and interoperability. AI algorithms can automatically analyze collected metadata, identify commonalities, and enable efficient metadata mapping. This includes consolidating metadata from different clinical research organizations (CROs) or legacy studies whose data elements use different naming conventions or structures. By automating metadata mapping using machine learning techniques, pharmaceutical companies can reduce the manual effort required for data transformation, minimize the risk of errors and inconsistencies, and achieve a unified view of data across an entire clinical trial lifecycle, especially when a company has multiple standards to follow. Finally, metadata needs to be integrated with other clinical trial data to enable analysis and reporting. Integration allows for the smooth sharing of metadata across different platforms and systems. A metadata repository provides a centralized platform and system that enables the integration of metadata with various other systems, including EDC systems. Integration also allows for the transfer of metadata between different studies. Moreover, integration facilitates the organization of all data, making it easier to analyze and generate reports. A metadata repository can leverage AI and automation to

streamline metadata management processes, from storage to integration and setup of clinical studies. By using a metadata repository, organizations can improve metadata accuracy and consistency. This will reduce the time and effort required for metadata management and enhances metadata quality and usefulness. Metadata validation, mapping, and integration also improves data quality. By utilizing a metadata repository, researchers can experience improved ease in managing and sharing their data. As a result, this leads to significant discoveries and breakthroughs in the medical field, which enhance patient outcomes. Accelerating speed to market using Metadata Repository (MDR) Rapid Standardization in Clinical Trials with Metadata Repository (MDR) New Version of TCS' MRT Platform to Help Pharma Cos Digitally Transform Clinical Studies TCS' Advanced Drug Development Suite Wins the India Pharma Award 2019 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 =====================

Unlocking new revenue streams in the construction industry

----- Arcticle source ----- https://www.tcs.com/insights/blogs/digital-transformation-enable-revenue-stream-construction-industry ----- Industry Rebalance the energy equation Highlights In this article Learning from other sectors Identifying the need for connected construction Creating value across the construction spectrum New revenue streams 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. Vandana Kadian 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. 4 MINS READ Vandana Kadian Client Partner, Energy, Resources, and Utilities You have these already downloaded We have sent you a copy of the report to your email again. The construction industry, one of the least digitalized sectors thus far, is finally exploring digital technologies to drive growth. The key factors driving this change include the steep increase in demand, severe pressure on companies to compress costs and project timescales, and stringent global sustainability goals. There is a vast potential for the construction sector to seek out, learn, adapt, and apply established thinking from other sectors. We discuss the digital solutions that can help construction companies unlock new revenue streams while releasing the pressure on top and bottom lines. Digitalizing operations will help construction companies deliver customer-centricity, offer value-added services, and more. It can help industry players improve their digital maturity. AI-driven connected technologies can help all stakeholders across the construction value chain, including engineering firms, contractors, and industry ecosystem partners, realize the benefits of storing information in a centralized location. By bringing assets, people, processes, and job sites onto one platform, these technologies can reduce downtime, optimize asset utilization and efficiency, and enable greater visibility into operations. However, stakeholders must address a few challenges to enable remote decision-making and monetize enormous amounts of data (company, end customer, suppliers). A digital strategy with data at the core will be pivotal in accelerating technology transformation. While emerging technologies ensure that existing infrastructure is optimized, the future mandates agility with 'always on' and 'fully connected' as key tenets. It will require integrated systems that provide real-time information across touchpoints (including suppliers, clients, employees, and projects) and capture data through all phases (plan, design, construct, operate, recycle, or demolish) of pre-construction and construction projects. Establishing such systems requires companies to focus on creating the right culture and environment and measuring performance KPIs across the value chain (see Figure 1). An image giving an overview of an integrated platform that provides real-time information across touchpoints (including suppliers, clients, employees, projects, and materials data) and captures data through all phases (plan, design, construct, operate, recycle, or demolish) of pre-construction and construction projects. Such a digital construction platform will enable value creation for all stakeholders; for instance, with effective data utilization and automation, suppliers and partners can ensure high-quality construction and supply chain management, and customers can receive prompt operations support and building-related services based on short- and long-term forecasts. As the industry enthusiastically embraces digitalization, it is discovering newer penetration and revenue growth avenues. Some of these new revenue streams include: Industry players can explore other use cases by identifying the link between suppliers and

manufacturers to create a seamless extended enterprise. Leveraging customer data analytics, construction firms can gain valuable insights to inform smart cities' planning using AI. Staying on top of the continually evolving construction landscape E&C companies that adopt data and digital measures can maximize their strengths and offer quality services at a better cost and speed. They will also be better positioned to realize the end goal of sustainable architecture and maximize human strengths with digital technologies. These digital frontrunners of the construction industry will drive productivity improvements and provide added value by accumulating multi-level data and utilizing the same. Technology in Construction to Support Enterprises' ESG Vision TCS Helps AGL in Digital and Customer Experience Transformation Measuring Grid Resilience: Managing Disruptive Events in Utilities Utilities' Race to Net Zero: The Transition to Clean Energy in the UK 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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Step up data quality with augmented data management

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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. 4 MINS READ Roopa Maliakal Consultant, Data and Analytics You have these already downloaded We have sent you a copy of the report to your email again. Every year, poor data quality costs organizations around $12.9 million according to Gartner. In 1983, an Edmonton-bound Air Canada flight had to make an emergency landing in Manitoba, Canada. The reason? A metric conversion mix-up had led the ground crew to load only half the fuel required to reach Edmonton. In another incident from 1999, NASA lost its $125 million Mars climate orbiter due to an erroneous English to metric conversion while exchanging vital data before the craft was launched. Both these incidents point to the need for data standardization and high-quality data. Unfortunately, the outlook around this is still lacking. Many organizations are losing millions of dollars every year due to poor data quality. From duplicate to inaccurate and inconsistent data, the quality issues around data are manifold. While there are solutions available for addressing data quality, they are far from ideal as they mostly take a reactive approach. Moreover, these solutions predominantly rely on available metadata and rules. It's no surprise then that companies are still reeling from the impact of poor data quality, such as: Revenue loss: According to the Gartner report mentioned above, every year, poor data quality costs organizations an average of $12.9 million. Missed opportunities: 21 cents for every dollar spent on media is wasted due to poor data quality, based on a Forrester report. Inaccurate decisions: 76% of IT decision makers believe that revenue opportunities have been missed due to lack of accurate data insights. Furthermore, 77% of IT decision makers do not trust the data they are basing their decisions on. Both these insights are gleaned from Snaplogic. Improve the quality of enterprise data with AI/ML by augmenting the people, processes, and technology around data quality management. Start by identifying data quality issues to address and take corrective measures. It's best to address these issues as close to the data's origin as possible. Although this seems like a simple, straightforward ask, it's often not the case as explained below. There can be several sources for metadata and data quality rules in an organization. However, the main challenge in ensuring quality lies in gathering only the most relevant and accurate sources. And business subject matter experts are the most reliable people to gather this data from. It is a complex undertaking that requires defining and implementing a framework supported by people, processes, and technology. It needs niche skills and know-how around data quality and metadata management—a task often confined to teams that are strictly IT functions. This slows down the implementation of data quality strategies. It is hence important to democratize data quality management. Build solutions that allow all the relevant users to contribute to tackling existing data challenges and creating high quality data. Companies can leverage ML techniques for data quality management. Pivot from a top-down to a bottom-up approach to define data quality rules. It's time to rethink the way

data quality rules are defined. In the traditional top-down approach, subject matter experts define the rules based on their domain and business know-how, making it a time-consuming process. Instead, companies can adopt a bottom-up approach where data quality rules are generated using AI/ML to automatically discover metadata and relationships from the existing data. The result? Improved turnaround time for creating data quality rules, which can then be used to create a rules repository that's accessible to the wider organization. With open data quality rules, a user will be able to include them as part of the application source code, data pipelines, and data quality management solutions. What's more, this will enable data scientists to focus on building more accurate ML models without worrying about data quality issues. Above all, this approach will ensure enterprises take accurate data-driven decisions that yield expected results. Boost your business performance with data and analytics Modernize your data centers with TCS Daezmo™ How French companies fare on TCS Datom™ data maturity scale How Australian organizations measure up for data maturity 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 to automate cybersecurity operations with SOAR

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4 MINS READ Gurumoorthi T Lead, Managed Detection and Response, Cybersecurity, TCS You have these already downloaded We have sent you a copy of the report to your email again. Lack of automation is impeding Security Operations Center (SOC) analysts in their fight against cyberattacks. Today's SOC analysts must manually verify and conclude false positives by relying on third-party tools and sources that validate suspicious IP addresses and domains. The lack of automated contextualization and enrichment of alerts is a key challenge in identifying suspicious behaviour in user accounts. The absence of integrated threat intelligence feed or advisories, and aggregated alerts that multiple tools generate for the same incident is an added challenge that results in alert fatigue. Moreover, manual follow-ups are required to take remedial actions. For example, analysts depend on firewall administration teams to block malicious connections, endpoint support teams for host isolation, and mail administration to delete infected mailboxes or reset affected user passwords. These challenges apply to the majority of SOC alerts and automating these alerts can reduce the time SOC Tier 1 analysts spend monitoring them. By embracing security orchestration, automation, and response (SOAR), SOC analysts can automate repeated and known triage tasks such as indicators of compromise (IOC) scan, threat intel and vulnerability enrichment, identity checks and de-duplicate alerts. They can also collaborate with stakeholders without having to monitor multiple channels and maintain a centralized knowledge base to easily access contextual information while managing similar incidents. Plan extensively before rolling out SOAR, to make sure it automates tasks in security operations—instead of becoming overhead for SOC. Begin your SOAR implementation by studying existing SOC playbooks, skill sets, incident handling processes, and integration requirements in detail to chalk out a long-term strategic plan. Next, work with your SOC analyst to determine your automation needs and SOC efficiency improvements and select a SOAR tool best suited for your needs. Be aware that, in most cases, it serves to automate playbooks for phishing campaigns and malware detection. In some cases, with poor adoption, it is used for alert aggregation and incident management. One can't stress enough on the need to avoid such pitfalls and plan for a proper implementation and set the right expectations for its management. Retrofitting a SOAR tool without analyzing the automation objectives can lead to wasted SOAR investments and make it an overhead for frontline SOC analysts. While a typical SOAR implementation with three to five playbooks may run for less than three months, it is highly dependent

on other influencing criteria covered in subsequent sections. Also, it is not a one-time activity and requires continuous development and integrations akin to other applications. Three principles to set up your SOAR for success. Scale maturity of security operations: Succeeding with SOAR depends on the maturity of security incident management process and playbooks. SOAR implementation, just like SOC maturity, also matures with time. SOAR could also be leveraged with security information and event management (SIEM), or other security products. The bottom line: set automation goals that are realistic, and time bound to achieve optimized SOAR maturity. Identify tasks to be automated: Incident-handling processes have multiple tasks, some of which can be automated while others must be manually completed. Be clear about the tasks that can be automated and their desired outcome. For example, in an incident handling process for a potentially compromised account, only part of the investigation may need automation. The security investigator can decide whether to suspend or lock the account based on severity. Embrace best practices of SOAR experts: Implementing SOAR immediately after setting up a SOC function is not recommended. Clearly define SOC processes with measurable outcomes, and do not implement SOAR for the sake of automation that will not add any value. The SOAR engineering team and SMEs play a vital role in designing the playbooks in the SOAR tool. Some best practices they adopt include identifying the right playbooks and defining KPIs. Take a giant leap in successfully automating your security operations. Companies are slow to adopt security automation as they believe it reduces headcount. In some cases, the SOC team may be working in crisis management mode, hence restructuring and automation are not an immediate priority. However, automation frees security professionals from routine tasks and empowers them to make decisions through intelligent analytics. Periodic reviews of the process and efficiency of automation, based on metrics gathered for improving the process and workflow, is key to driving visible improvements. With SOAR platforms, enterprises can prevent and respond to a host of new threats and attacks. By augmenting it with a robust security solution, threat intelligence, and IT hygiene, enterprises can transform incident response. Retrofitting a SOAR tool without analyzing the automation objectives can lead to wasted SOAR investments and make it an overhead for frontline SOC analysts. TCS Threat Management Centers TCS Threat Management Centers TCS Cybersecurity services How modernizing cybersecurity empowers business growth TCS Enterprise Vulnerability Management Services Enhance cyber resilience with zero trust security 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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Measuring success in customer experience

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this dilemma, lessons learned from successful CX transformations can be a foundational framework for success.   Organizations embracing for TX strategy need to define appropriate key performance indicators (KPIs) according to their industry, competition, and geography. KPIs like customer satisfaction (CSAT), customer effort score (CES), customer lifetime value (CLTV), customer retention, and revenue growth are well-established indicators of success. In many B2B enterprises, net promotor Score card (NPS) is considered a broad measure to evaluate customer satisfaction benchmark and has been adopted as an indicator of an organization's propensity to strengthen client relationship. While these measures are critical enablers in quantifying strategic impact, they are not sufficient in silos and need to be augmented with the relevant operational measures to provide a consolidated and more actionable barometer for experience.   In addition to NPS, digital transformation initiatives directly impact a regular day in the life of B2B customers, partners, and employees. These impacts factor in touchpoints across the user journey and can be thought in terms of: Transactional impact Aspects like ease of interaction, speed and conversion rates can be considered for CX initiative targeted towards enhancing transactional effectiveness. For example, for a CX intervention centered around launching an equipment or parts marketplace, measures like order cycle time can be used as a direct indicator of value from a customer standpoint. This will highlight the increase in productivity compared to the traditional offline ordering process prevalent in the industrial manufacturing sector. Additionally, impact on measures like order volume or Order Book Value (OBV) can indicate whether the initiative has accelerated the organization's growth priorities. Customer service impact As in the case of B2C ecosystem, customer service driven by call-center models and traditional call resolution metrics remain relevant. However, the industrial manufacturing sector has gravitated to self-service features such as unified customer portals and digital assistants which have become key expectations for customers and end users today. As a result, call deflection indicators and self-service satisfaction metrics provide a strong measure of success. Often these measures are easier to quantify, based on the availability of data from digital analytics, compared to historic data from support requests and full-time employees (FTE) effort spent in servicing them. Adoption and engagement impact Unless specifically addressed upfront, adoption has always been a key challenge for many CX transformation initiatives. Measures around user access and user stickiness such as login counts, login frequency, login duration, and feature usage are some of the key indicators to measure the effectiveness of CX programs from an adoption lens. Although trailing the B2C world, industrial majors are starting to experiment with digital usage analytics tools and models to collect this data and drive future initiatives.   There is no one-size-fits-all solution to the CX measurement problem. However, following a structured approach – as highlighted below – an organization can significantly improve success rates. Baseline - Establish a baseline for all key metrics, both strategic and operational. In the absence of data, consider using consensus on extrapolated baseline values. Contextualize - Apply suitable weights to the KPIs based on business strategy. For example, certain geographies or product lines may be of higher strategic value, and hence assigned higher weightage, customer segmentation, customer value, and so on. Measure - Progressively measure the KPI after every CX intervention increment.

Feedback - Establish a feedback loop into future iterations of CX transformation. Adoption of a consolidated CX score approach provides an effective view of the impact of CX interventions from the lens of the enterprise, customer, and operational touchpoints. That helps to establish a feedback loop which will inform and guide future decision-making and investments in the CX continuum for B2B industrial manufacturing companies. Artificial Intelligence: Amplifying Customer Experience in Logistics The Great Customer Experience Opportunity for Logistics Providers Reimagining customer experience in Agribusiness the neural way Enhancing customer experience and giving brands a human face with AI 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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Fly to a greener future with smart airports

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Passenger growth poses many challenges Globally, airports handle billions of travelers each year. The number is only rising. Estimates show that the demand for air passenger transport in 2050 could exceed 10 billion. As air traffic grows, airports will have to deal with multiple challenges—increasing capacity amid growing passenger demand, improving operational efficiency and employee productivity, strengthening safety and security measures—to provide superior experiences to passengers and drive revenue. And as the aviation industry grows, so will its carbon footprint. In 2021, aviation accounted for over 2% of global energy-related carbon emissions. As new terminals, ground transportation infrastructure, and facilities like runways, taxiways, and strips are built, energy demand and emissions from airports will also increase. Airports are estimated to account for only 2-5% of global aviation emissions. However, they act as a key link between various aviation and non-aviation stakeholders. By actively reducing emissions, airports can drive effective sustainability management across the stakeholder ecosystem. Consequently, many airports globally have incorporated greener elements into their design and operations strategies besides pledging to support environmentally sustainable initiatives. However, to stay ahead of the curve, airports must transform themselves into smart systems that adapt to real-time operational and customer requirements, all the while keeping an eye on the larger goal–sustainability.   Digitalization is a gamechanger for airports With digitalization, airports reduce silos among various stakeholders of the airport ecosystem—airlines, airports, passengers, cargo, security agencies, vendors, and others—and create an environment where real-time information is freely exchanged to enable collaborative decision-making and optimized operations. Digitalization has paved the way for the smart airport concept. Smart airports with connected, automated, and intelligent systems help drive superior passenger experience, enhance capacity, improve operational efficiency, drive revenue generation, ensure regulatory compliance, and enhance value propositions at airports. It relies on extensive digital infrastructure powered by ultra-high-speed networks, cloud, internet of Things (IoT), and AI to connect various stakeholders across the airport ecosystem to enable sustainable performance. Connected airports contribute significantly towards a sustainable economy Smart, connected airports can work with stakeholders across the airport ecosystem and beyond to create a truly sustainable economy. It can help make an impact across the three key pillars of sustainability—planet, people, and prosperity. Smart airports optimize resource utilization at airports, thus helping the planet. IoT-based energy management systems offer comprehensive data analytics on electricity, water, and HVAC usage, to ensure continuous operation at optimal levels. Energy harvesting that enables self-powered IoT sensors utilizing renewable energy is a crucial technology that can make smart airports sustainable. Optimized traffic

routing, including optimized parking space utilization, as well as the elimination of boarding delays using big data and prediction models, can enable airports to maximize on-time performance (OTP), improve operational efficiencies, reduce fuel burn, and thereby lower environmental emissions. By using intelligent sensors for condition monitoring, airports can pick up performance trends and signs of impending failure to enable more targeted maintenance. Optimizing power grid operations can enable airports to efficiently electrify buildings and support-vehicle fleets, thus reducing reliance on fossil fuels. Smart airports can impact people by enabling safer operations. Holistic airport management systems that work seamlessly together using cloud technology can offer live information to employees, driving agile decisions and workplace safety. A social intranet can help in targeted internal communication and collaboration. Smart use of big data and AI can complement the day-to-day work of humans within airports and power driverless, self-directed machines for support tasks, improving the efficiency and safety of aircraft fueling and many other operational processes. Robots and autonomous technologies can also assist effectively during aircraft incidents. Smart airports can ensure prosperity through community and ecosystem apps. These apps can provide dynamic business intelligence to all stakeholders and support instant decision-making to ensure efficient passenger flow and airport asset management. Airports can further partner with and encourage taxis and shuttles to use fuel-efficient or alternative-fuel vehicles, as well as engage with towns to improve public transport for airport passengers. They can also work with governments on mobility innovations such as urban air mobility (UAM) and autonomous driving services, in the creation of AR navigation and interactive services for tourists, and partner in the realization of smart cities. Smart, connected airports will make an impact across the three key pillars of sustainability—planet, people, and prosperity. Smart airports help the planet by maximizing resource utilization with IoT-based energy management systems powered by data analytics. They impact people, including employees, by enabling safer operations through: 1) a holistic, cloud-based airport management systems to provide live information for agile decisions and workplace safety; 2) a social intranet for targeted internal communication and collaboration; 3) driverless, self-directed machines for support tasks to improve the efficiency and safety of aircraft fueling and other operational processes; 4) robots and autonomous technologies to assist during aircraft incidents. Smart airports ensure prosperity through community and ecosystem apps that provide dynamic business intelligence and support instant decision-making for efficient passenger flow and airport asset management; by promoting fuel-efficient vehicles through partnerships; by contributing towards the creation of smart cities; and by facilitating innovations in mobility such as urban air mobility (UAM) and autonomous driving services.   Create new opportunities by adopting technology As technologies for sensors, connectivity, and processing power advance, and AI takes a quantum leap, new solutions will emerge to make airport operations more robust and resilient. Breakthroughs in technologies like 5G, quantum computing, AI and autonomous systems, and cloud will further strengthen collaboration across the airport ecosystem to generate varied forms of aviation and non-aviation revenue. At the same time, securing smart airports and staying ahead of evolving cyber threats will be a shared responsibility of the whole ecosystem involving airlines, airports, vendors, and others. The long-term development of smart airports

will include the use of more autonomous solutions, further optimizing airport operations and enhancing safety. Activities such as delivering baggage, fueling planes, traffic control, security processes, and immigration will continue to be performed with increasing autonomy. Airports of the future will be smart and sustainable, focusing on real-time operations by connecting all airport stakeholders and customers in one fully integrated, intelligent digital ecosystem. Star alliance making travel experience better with TCS' solution TCS Aviana™ Helps United Airlines Get Off to a Flying Start International Airport Review: How Innovation is Changing T&H Sector Re-inventing Airport Retail Revenue for Future Growth & 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

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The EV revolution is here. Hospitality should get charged up

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their dominant customer segments. This could include offering different power levels, connector types, and payment options to ensure the best possible experience for the customer. For example, installing more fast charging stations, Level 2 chargers, or Tesla-specific charging stations, depending on the needs of their customers, thereby improving customer satisfaction and usage of their charging stations, ultimately driving revenue growth. By understanding their customers' needs and preferences, firms can make data-driven decisions that help them achieve their goals while providing a better customer experience.   Trim expense with automation Intelligent charging and automation can significantly reduce the total cost of ownership for EV users, benefiting both customers and the organization's fleet operations. This can include features like load balancing to optimize charging, scheduling, and automated billing. For example, smart charging stations can optimize the charging process, reducing charging times and minimizing energy consumption during peak hours. This can result in lower electricity costs for both the customer and the hotel. Additionally, using renewable energy sources such as solar panels can further reduce energy costs and decrease the carbon footprint of the power source.   Out-of-the-box processes will speed up implementation Implementation processes can be faster thanks to out-of-the-box processes; selecting pre-engineered and pre-configured solutions can help reduce the time and cost required to set up the charging infrastructure. Enhance service level with advanced analytics Advanced analytics can help improve service level performance. Data collected from the charging stations can power self-healing AI, analytical software maintenance and remote monitoring. This will help detect and potentially address charge station issues before they become problems. This will ensure that customers receive the best possible experience and reduce operational downtime due to technical issues. Make charging stations easily accessible to customers Automated processes can make customer onboarding a smoother experience. Through mobile apps or web portals, customers can easily discover and access the charging stations. They can also be provided with real-time information on availability and charging progress. It opens up many revenue growth opportunities Hotels and franchisees can explore multiple ancillary revenue growth opportunities by offering EV charging services. This can include EV concierge services, valet charging, battery swapping, or maintenance solutions. Additionally, they can develop loyalty programs that offer incentives for EV users to choose to stay at hotels or visit restaurants that offer EV charging facilities. In conclusion, by offering accessible and convenient charging facilities, the hospitality industry has the potential to drive additional revenue streams and reduce range anxiety among EV users, whilst accelerating the adoption of EVs and leading the charge to a more sustainable future. But to do so, they must embrace the paradigm shift and invest in the infrastructure and technology necessary to support this fast-evolving transportation revolution. The time to act is now. How travel companies can build delightful digital experiences Smart mobility ecosystem: Future-proofing industry business models TCS Neural Manufacturing: Building a Connected Ecosystem TCS Mobility Suite: A Cloud-based Solution for Connected Vehicles 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

Driving net-zero emissions with carbon capture, utilization, and storage

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source of energy, industries like steel still require carbon sources. Substituting them with chemicals like hydrogen will require major technological transformations. Moreover, several large economies still depend on thermal power and this dependency is likely to continue until 2040. Additionally, CO_2 is already in abundance in the atmosphere with a concentration level of about 415 parts per million (ppm) in 2020. In this context, carbon capture, utilization, and storage (CCUS) become unavoidable to reach the goal of limiting the global temperature rise to 1.5 °C. In this blog, we outline a way forward using carbon capture. Point carbon capture is one of many clean energy transition options. It refers to the process of capturing carbon at the source from heavy industries like power, steel, cement, and chemicals. The exhaust gases are in a contained environment and CO_2 concentration is also relatively high (10-30% by volume), making a case for carbon capture plants to be established as an extended arm closer to the site. However, this inflates the cost of operations. Capturing CO_2 from the atmosphere, or direct air capture, is relatively more challenging than point carbon capture as the volume of air is huge while concentration of CO_2 is extremely low. However, the major advantage of this approach is that plants can be constructed anywhere on the planet. For instance, the plant can be constructed somewhere closer to an abandoned mine where CO_2 can be sequestered. Several factors need to be considered before selecting the carbon capture technology, such as volume of the gas to be treated, concentration of CO_2, impurities present, power required, effluents and wastes, and cost. Well-established technologies such as absorption, adsorption, membrane separation, and cryogenic distillation that are used for gas separation and purification in industries are often recommended. New technologies like chemical looping and microbial or algal systems are also being explored for carbon capture. The appropriate technology can be adopted based on the requirements. Each technology has its pros and cons. For instance, technologies like absorption and cryogenic distillation are mature and CO_2 recovery is high (> 95%), but they are energy-intensive (4-10 MJ/kg CO_2). On the other hand, adsorption and membrane separation are less energy-intensive (0.5-6 MJ/kg CO_2), but recovery is lower (80-90%). Another crucial factor to be considered in the entire process is the cost of transportation and storage of CO_2. The current practice is to store CO_2 in saline formations and depleted oil and gas reservoirs. The need of the hour is to offset the cost of capture by utilizing CO_2 for applications in enhanced oil recovery, fertilizers, polymers, food processing, industrial gases, and liquid fuels. Lastly, environmental sustainability of the process including the materials used and their lifecycle should be considered while selecting the technology. It is imperative to identify the best possible carbon capture technology and materials for each industry, with an efficient upscaling mechanism to meet industrial and environmental requirements. For example, solvents such as mono-ethanolamine (MEA) and di-ethanolamine (DEA) are commonly used for CO_2 absorption. There exist other alternatives that may work better depending on the nature of exhaust gases. Some may be good for carbon capture but are corrosive. Similarly, different materials are utilized as sorbents, membranes, and catalysts, in case of adsorption, membrane separation, and chemical looping, respectively. Artificial intelligence (AI) along with technologies such as process modeling, simulation, optimization, and control can lead to enhanced efficiency. Molecular simulations and machine learning

algorithms can be applied not only for identifying and selecting appropriate materials but also for data-driven discovery of novel materials. Similarly, physics-based models can be utilized for complete carbon capture process synthesis and design, as well as for selection and detailed design of individual equipment through process modeling and computational fluid dynamics, and so on. Digital twins deployed during the pilot-scale testing and scale-up stages will help predict potential challenges using real-time data. It is imperative to use carbon capture technologies to achieve net zero. Several plants with less than one million tons per annum (Mtpa) CO_2 capture capacity are in operation and need to be scaled up to arrest global warming. It is time to focus on technological solutions for novel materials, equipment, and processes, combining the knowledge and expertise from materials science, process engineering and digital technologies, to make carbon capture, utilization, and storage techno-economically feasible. Digital twin: Driving sustainability in power plants Green software: Best practices for a sustainable future AI workload migration to the cloud Zero Trust Network Architecture: Business Security in a Digital World 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 to accelerate business value with demand sensing

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cloud-based technologies. An approach to better data integration Though many retailers and CPG companies are already using AI and ML to help them create better forecasts and plans, they still struggle with the complex and time-consuming process of integrating external data with their internal systems to improve the accuracy of their predictions. In fact, in a survey, 63% of companies said the most common barrier to using external data was data preparation and integration. Thankfully, innovative solutions from leading cloud providers like Google Cloud are enabling enterprises to get to business insights and outcomes faster, with less risk, complexity, and cost. Companies can kick-start their data on cloud journey easily using reference architecture patterns, packaged solution deployment content, and integration services these providers offer. By doing so, they can build intelligence into their ERP data collected daily and operationalize data back to their business processes. At TCS, we have unlocked deep data insights and quickly delivered differentiating capabilities for our clients. By combining our outcome-based approach and deep industry knowledge with solutions such as the Google Cloud Cortex Framework, we have found that we could cut data integration time from the usual six to nine months to as little as six to eight weeks. What this means is that product development teams can significantly reduce time to market and roll out products while demand for them is still high. By having the right products at the right time in the right places, companies can boost upselling by 30% to 40% while enhancing customer satisfaction and loyalty. Over time, we believe new approaches like the Google Cloud Cortex Framework and its underlying solutions can have a dramatic impact on retail and CPG companies, enabling them to build a brighter, more profitable future for themselves. TCS SAP Application Migration to Google Cloud Cloudification of the digital core How AI will transform customer care Writing the code of AI ethics 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 =====================

AI driving new era of cloud adoption: TCS Global Cloud Study

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suppliers go to. From this final stage, more innovation can occur. You can think of this transformation as moving from Cloud 1.0 to Cloud 2.0. In Cloud 2.0, your value added will be different from what it is today. Stage Key tasks recommended by the author of this article Percentage of North American companies at this stage 4. Transform your business and build a purpose-driven ecosystem that enables customers to achieve their goals (Cloud 2.0) 9% 3. Innovate business models 29% 2. Build digital core (Cloud 1.0) 46% 1. No plans to participate in cloud ecosystem 17% What these statistics reveal is that there is a learning curve to thinking about how to use cloud technology. In the early years, the battle is about managing scaling, costs, and in some cases, limited innovation. Most companies in North America (68%) understand that the cloud is important. But how they understand its importance will vary. Part of the reason is the varying degrees of expertise in cloud technologies, according to the North America survey. Given these challenges, it's no surprise that success with the cloud means success with managing large amounts of data and achieving scalability. Globally, for companies that focus on innovation, cloud is a key investment with 59% reporting that it is crucial for their organization's future. This is especially true for artificial intelligence (AI): 75% of respondents invested in AI and machine learning capabilities over the past two years, while 78% plan to do so over the coming 12-24 months. Some North American companies will be focused on the cost advantages of cloud. If they get their cost estimate wrong, and 40% do, they worry that long term cloud use will be too expensive. In fact, 27% feel under pressure to justify their cloud decisions. But these companies are typically at Stage 2. They have yet to consider how cloud use can allow them to increase their revenues. They are TCO oriented (Total Cost of Operations) rather than TVO oriented (Total Value of Opportunity) oriented. With a TVO orientation, they are thinking about how the cloud can enable new businesses, new value added, new revenues and better branding. For them, improving customer experience, improving processes, and adding value to their offering are key decisions in justifying cloud usage. An infographic explaining the 3A (assess, analyze, advice) framework for AI maturity in retail business processes. It is a knowledge-based recommendation engine that helps retailers improve AI maturity and reap the benefits of digital transformation. The framework consists of steps that range from assessing the current state of AI maturity to full-blown AI democratization. The first step is to discover any organizational issues that may be hindering data analytics, such as manual processes or high technology debt. Next, analytics are examined to reveal any silos in data or on-premise structured data. Consolidating data warehouses and implementing predictive analytics can help to localize analytics. The second step is to organize, which involves improving organizational awareness, investing in value proofing Al models, and reducing tech debt. The third step is to enable organizational alignment and focus on building Al products. Laying the AI foundation requires the enablement of cloud or on-premise big data. Data harmonization and minimal viable product on Al use cases are also necessary. The next step is to disrupt the current business strategy with Al-driven decisions, Al governance, and an established Al office. With this 3A framework, retailers can upgrade their AI maturity and fully digitalize their knowledge management framework. Companies are under regulatory and public pressure to report on their ESG issues. The cloud is widely used for making such data more easily collected and more visible. Challenges remain

in reporting on employee diversity and community involvement, but the majority of topics are benefiting from the cloud. There's a difference on how cloud security is perceived. 39% feel confident that they excel in cloud security and have no issues. But 20% are concerned that cloud security is a major barrier to innovation. The larger global obstacles to cloud-enable innovation are three-fold: The reasons that these areas worry managers are based upon FinOps, DevOps and agile practices. Roughly 45-47% worry about tying strategy to cloud objectives, ROI metrics, FinOps and DevOps. Agile issues are a concern of 52% of those surveyed. So, whether you are using a hybrid cloud (78% in North America) or just a public cloud, your concerns remain the same. You need to have confidence that you won't have to deal with expensive downtime. Much has changed in the past decade since 2011, when TCS conducted its first cloud survey. There has been a gradual shift in mindset from cloud as an IT-centric solution to cloud as a critical business strategy. In that first TCS cloud study, discussions centered around optimizing computing resources and pay-per-use pricing models. At that time, cloud's role in innovation was largely confined to its ability to generate cost savings that could then be redirected to other areas of investment. Today, the cloud is a catalyst for innovation, as a majority of respondents in this study reported. It's the core pillar for data-intensive computing — generative AI, edge computing, quantum, among others — and hyperconnected ecosystems that bring customers, partners and employees together. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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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Utility retailers set to optimize consumer energy demand

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Bodhisatta Biswas Business Analyst, Corporate Market Research You have these already downloaded We have sent you a copy of the report to your email again. The European utility industry follows strict guidelines of regulations for combating climate change and adopting renewable energy. However, the heavy dependence on exports for the procurement of raw materials, components, logistics, and labor amid the ongoing energy crisis and supply chain volatilities poses challenges for energy companies. The latter use their home-grown renewables and fossil fuels for electricity production to cater to the supply needs. The implications? A rapidly escalating cost of electricity and a regulated energy price ceiling result in supply scarcity that affects ongoing customer commitments. Utility providers are looking to channel a shift toward regulating the end-user demand to minimize the impact on supply and avoid sudden invariability in the grid. Utility providers could explore a technology-driven step-by-step systematic approach, addressing all the customer touch points from awareness development to empowerment and adoption to service assistance. Let us dive deep into the four key levers utilities should pull to optimize consumer demand for energy.   Behavioral shift is imperative in bringing about change.   Awareness campaigns on energy savings and related bonus schemes across physical and digital channels will encourage prudent energy use. For instance, a Polish utility launched information campaigns on reducing the temperature in shared spaces with successive campaigns for advocating self-estimation of energy costs. Utilities can also explore incentive-based schemes that provide consumers monetary benefits for reduced consumption over a fixed period. Utility retailers aim to offer control and flexibility to consumers for better energy management. Smart

home automation, dynamic pricing-based tariffs, and the integration of prosumers to the grid are providing consumers with the necessary control and flexibility. However, ensuring a seamless customer experience is crucial to realize these benefits fully. This includes providing easy-to-use self-service options allowing end-users to monitor and assess their consumption in real-time, optimizing energy usage, and reducing costs. We explore these three self-service options in detail. a) Smart home automation Holistic service play like app-based fine-tuning of heating, lighting, and home security solutions in real-time can help consumers manage energy efficiently with a click of a button (one such example is Iberdrola's smart home systems). Water being another critical component of daily use, utility providers like Centrica are implementing leakage monitoring solutions with remote diagnostics through their Hive Active Heating and Leak Plan. Creating a one-stop platform for monitoring electricity, gas, and water consumption in a consolidated manner can be a game-changing proposition for utility players. b) Dynamic pricing-based tariffs Utilities are leveraging information, such as the time of use, to offer usage-based customized tariff options to restrict energy consumption during peak demand times. With differential pricing models during off-peak, mid-peak, and peak periods, utilities can encourage consumers to opt for flexible energy consumption. Specifically, utility retailers are proposing personalized pricing options, which can deliver a superior user experience resulting in faster adoption. Parallelly, retailers can use an integrated dashboard to determine energy usage, analyze customer behavior, and apply AI-ML for demand prediction to customize tariff plans further. c) Integration of prosumers to the grid Prosumers are increasingly becoming prominent stakeholders in the next-gen utility value chain. Potential use cases are evolving that let prosumers transfer the stored energy from their vehicles or stores to the grid. A vehicle-to-grid pilot initiated by a UK-based energy retailer who claims to share live charging and discharging updates presents one such instance. A German utility also took a similar initiative in the B2B space that provides an option to market stored energy to the electricity exchange if it is economically beneficial. Though such initiatives add to the grid's complexity of managing distributed energy resources, they can address the energy shortfall challenge. If managed effectively, they can be the solution to balancing the grid. The energy crisis has accelerated renewable energy consumption leading to green tariffs. Utilities now have opportunities to steer green energy adoption at a larger scale by offering separate tariffs for homes and cars. For households, the UK's largest energy and home services company has designed tariffs to address electricity and gas needs by issuing certificates to support the claim of items that are obtained from renewable sources. On the other hand, app-based EV charging tariffs by utility retailers that offer an option to optimize the charging times based on AI-driven analytics are gaining momentum. Ensure seamless transition, deployment, and maintenance of renewable energy infrastructure. With the increase in renewable energy consumption, utilities and startups have started supporting consumers with affordable infrastructure services. Many home-grown startups have forayed into this space. For instance, Enpal, a German startup, lets homeowners rent solar panels. Similarly, Windcity, an Italian startup has created a modular solution to integrate wind turbines with solar panels, providing greater flexibility and efficiency. Additionally, startups are developing potential use cases around pay-as-you-go and interoperability to offer users a seamless transition. These

solutions unlock future opportunities for collaboration to deliver cost-effective installation, maintenance, and insurance support. IoT, analytics, and AI are crucial for implementing energy-saving measures for consumers. While utility providers have been considering technology integrated measures for demand reduction, the wide variability of energy usage indicates significant opportunities. Utilities should focus on a structured approach to curating experiences at each customer journey phase using technology. The goal is to empower customers to make better decisions and create a trustworthy partnership between the utilities and the end consumers to combat the energy crisis. Utility retailers can alleviate the supply challenges by optimizing consumer demand. They can create awareness, providing necessary infrastructure assistance, and enable personalized decision-making through digital offerings. The Energy Transition: Empowering Utilities to Achieve Net Zero Technology in Construction to Support Enterprises' ESG Vision Thriving in the New Energy Economy 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 try after some time. Theme Font size Line height
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Have we arrived at an era of truly immersive experiences?

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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. Anthony Zagariko Associate Design Director You have these already downloaded We have sent you a copy of the report to your email again. For brands, the promise of virtual reality (VR) and augmented reality (AR) is crafting immersive and inclusive experiences. Some are already using AR and VR-powered applications to let customers try out their products. The IKEA Place app allows people to virtually position a particular piece of furniture in their house and get an idea of how it would look in their living space. Maybelline's virtual makeover and online makeup application tools let customers experience their products virtually. Not just brands, large events and festivals are using AR, VR, and 3D applications to create interactive and immersive experiences. But these are far and few between. Companies are really yet to buy into these technologies. The discomfort of wearing a heavy AR/VR headset, the disconnect with the real world when wearing one, and the high price tag these solutions come with are obvious hindrances to their uptake. But with innovations like the Apple Vision Pro coming into the market, are we going to see mixed reality finally taking off? And have marketers finally got what they need to deliver truly immersive experiences? Blending the digital world with the physical world seamlessly with spacial computing With Apple, a company that has revolutionized industries from phones to movies entering the headset market, we could be looking at the beginning of a new era of immersive experiences in marketing. One where using an AR/VR solution doesn't mean cutting yourself off from the real world. Where you could easily navigate between a virtual world, a digitally augmented one (with virtual objects in your real world), and the real world. The company calls the Vision Pro a 'spatial computer' that blends digital content with the physical world seamlessly while allowing users to stay present and connected, making it clear it is not about escaping into an alternate reality. With a solution like Apple Pro, you can get as immersive as you want or come back to reality instantly by simply scrolling with the user interface. For marketing, the possibilities are many. Imagine browsing through a retail website, being transported instantly and seamlessly into a virtual representation of the company's store, and interacting with store colleagues who can provide extra assistance. This could happen with a tool like Vision Pro, and at a time when brick-and-mortar stores are fighting for survival because of competition from online shopping, innovations like this could help companies combine the best of both worlds. Brands can leverage such innovations to allow customers to explore new places, new products, and new experiences without them taking the trouble of physically going to these places.   Intuitive interfaces and 'no touch' controls can drive AR/VR adoption in marketing. Until now, AR/VR-powered digital experiences have relied on physical interactions, either through a mouse or keyboard, a

touchscreen, or hand-held physical controllers. The Pro Vision could be a game changer. Apart from the intuitive interface, features like controls through eye-tracking and hand gestures mean users adapt to it naturally. Users need only look at a virtual element or pinch their fingers together to get a reaction from the object or to select, drag, or scroll through texts or images. They can also dictate or use a virtual keyboard or dictation to type. Advancements like these are sure to help AR/VR go beyond gaming and help these technologies find more takers across industries and among marketers. For the headset industry itself, the eye and hand gesture control instead of hand-held controllers could be the stylus ditching moment that happened when the iPhone touchscreen came along. Hardware and software specifications also are changing rapidly. New operating systems focusing only on the AR experience are coming into the market. The Apple visionOS, for instance, is an operating system entirely controlled by the user's eyes, hands, and voice without the need for any physical touch. It's packed with technology—5 sensors, eye tracking technology, LiDAR scanner, 12 cameras, and 6 microphones, among others.   Making computing more accessible for people with disabilities Beyond gaming and marketing, technology innovations using AR/VR may very well ignite novel use cases. They can, for instance, make computing more accessible for people with disabilities. The combination of eye movement and a tiny pinching movement of the user could be so minimal yet powerful that it completely redefines digital experiences. For those with disabilities, capabilities like these could help improve accessibility and reduce dependency on others.   If brands like Apple can define the standards of spatial computing as they did with mobile computing, and bring in more affordable and unobtrusive options for people and businesses to choose from, the next few years will be exciting. With spatial computing that combines the power of computer vision, AR, VR, and a host of other new technologies becoming more accessible, we can look forward to more immersive experiences, and more inclusivity. Creating immersive experiences and reducing carbon footprint with XR Unlock the Secrets of the Amazon or the Alps with Augmented Reality Leveraging immersive technologies to transform the talent experience Mining Sector Adopts Immersive Technologies for Safety Training 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 =====================

3 keys for resilience in travel and hospitality

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PURPOSE AND SUSTAINABILITY About the author Related Blogs 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. Parameswaran Madhusoodhanan Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Parameswaran Madhusoodhanan Lead-Industry Solutions for TTH, AWS business unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. Technology-led business transformation is an imperative for the travel, transportation, and hospitality (TTH) industry to build resilience. Companies need to embrace digital transformation to keep up with changing demand and overcome challenges such as supply chain disruptions and talent shortage. They also need to create a customer-first culture and embed sustainability into their business to meet the expectations of investors and sustainability-conscious customers. The travel, transportation, and hospitality (TTH) industry has always been sensitive to economic downturns and geopolitical and natural events. The way travel came to a halt at the peak of Covid-19 lockdowns highlighted the need for the industry to build resilience. TTH organizations must prioritize digital-driven business transformation programs to solve some of the challenges they face. Each of these challenges demands digitalizing and transforming existing business models and processes from the bottom up. We suggest TTH companies consider the following approaches.   Make the most of technology to become data-driven, intelligent businesses. Companies can leverage cloud, data, analytics, AI, automation, and IoT—or a combination of these technologies—to get a 360-degree view of their business, derive contextual insights, enhance customer experience, improve operational efficiencies, and offer more relevant services. Hotels can elevate the customer experience with dynamic pricing

and contactless check-in. Airlines can soar higher with predictive maintenance of their assets and intelligent operations like one of the leading North American airline did. Using an intelligent airline operations solution on cloud, the airline modernized its operations, gained real-time situational awareness of its global operations, and enhanced the flying experience for its customers. Car rental companies can better manage their fleet and claims, and improve vehicle inspection with a combination of cloud-based connected mobility and machine learning solutions. So can ports get maximum value from their assets with predictive maintenance, while they also improve efficiencies with autonomous operation and terminal operation optimization. Cruise lines can offer more memorable experiences to customers with hyper-personalization and frictionless boarding using AI. And logistics companies can boost supply chain management and demand forecasting with cloud-based supply chain applications. Data-driven, intelligent business operations are a journey rather than a destination, so continuous innovation and early technology adoption play a key role. The cost, time and complexity involved in data, machine learning, and AI can be managed by leveraging cloud offerings in this space.   Be customer-obsessed, put customers at the heart of your business. To meet rising customer expectations, companies need to put them at the center of their business ecosystem and collaborate with ecosystem partners or even competitors. Driving a customer-obsessed culture requires greater empowerment at all levels. This is especially true for frontline staff and customer care teams, who are in the best position to drive a "customer-first" culture because of their first-hand understanding of ways to create delight and empathize with customer needs. With the right contextual information and technology for better collaboration among various divisions, employees can be empowered to make better decisions.   Leverage technologies such as cloud to become more sustainable businesses. Sustainability commitments and initiatives have taken a higher priority for companies due to increased consumer awareness, demand for greener operations, and investors increasingly focusing on sustainability. TTH companies can take the lead by embedding purpose and sustainability into their business. Cloud can help here. Companies can set up their IT cloud infrastructure based on business need, instead of relying on a larger, on-premises data center that doesn't have flexibility to scale up or down. In addition, most cloud providers are committed to greener operations with renewable energies, water management, and IT hardware reuse.   How Cloud Helps Improve Social and Governance Effectiveness Building Cognitive Operations with a Machine-first Approach 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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The regulatory landscape of M&As in the pharma industry

Industries Patient-centered Care: Health and Wellness Redefined Patient-centered Care Models Taking Center Stage in Life Sciences Services TCS Consulting Services to Achieve Success in the Digital Era Unlock Business Agility and Future-ready Operations with TCS Ecosystem-led Approach to Power Your Sustainability Strategy Highlights On this page The importance of M&As in the pharma industry The rapidly evolving landscape Technology enablers Enhancing the efficiency and productivity throughout the M&A process About the author Related Blogs 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. Sudip Kar Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Sudip Kar Senior Manager, Life Sciences, TCS You have these already downloaded We have sent you a copy of the report to your email again. Mergers and acquisitions (M&As) have great strategic importance for pharmaceutical companies. In recent times, the pharma industry witnessed a significant uptick in mergers and acquisitions and a modest increase in the average deal size on the top end of the spectrum. M&As pose enormous challenges on the regulatory front for pharma companies as the industry is highly regulated. In most cases, companies need to be better equipped to tackle these complexities. Due diligence is paramount and needs to be consistent to ensure the organization has a

robust plan for managing the M&A. Another challenge is selective data migration, considering that organizations often use different systems and applications. So, amalgamation and data management of various applications are enormous challenges. One of the traditional management practices of mergers and acquisitions is outsourcing M&A activities to CROs. However, not all organizations are able to navigate the complex landscape of regulatory M&A processes successfully. Industry 4.0 technologies can help manage mergers and acquisitions effectively. By harnessing the power of Industry 4.0 technologies, such as AI, machine learning (ML), Generative AI, automation, and robotics, companies can streamline the due diligence process, identify synergies, and assess potential risks with greater accuracy and speed. This will ensure faster approvals from the statutory bodies enabling quicker access of drugs and other medicinal products to patients. These technologies can facilitate data integration, enhance decision-making capabilities, and automate repetitive tasks allowing the regulatory affairs team to focus on strategic initiatives. Furthermore, the insights derived by AI-ML help implement a knowledge-driven approach in managing M&A, optimizing outcomes, and creating competitive advantage in the dynamic business landscape. Pharma companies can adopt a few approaches to make mergers and acquisitions seamless from a regulatory perspective. The regulatory activities for M&A involve the submission of marketing authorization transfer (MAT) applications to the health authorities like the US FDA (US Food and Drug Administration) and EMA (European Medicinal Agency). Creation of the MAT applications requires data extraction from diverse sources, review of the data, and finally, using this data to create MAT applications per standards. The technology enablers can aid the creation of MAT applications for submission to health authorities. This can be done through the following steps: A real-world example of report creation using technology enablers is the collaboration between a technology company and a European pharma major. For regulatory submissions, the natural language generation (NLG) platform built by the technology company extracts data from various sources and transforms it into clear and concise narratives to generate clinical reports. The platform uses AI-ML algorithms to analyze structured and unstructured data such as clinical information, safety reports, and regulatory guidelines. The idea is to use a similar approach to create reports for submissions necessary for mergers and acquisitions. Some of the strategic imperatives identified for efficient management of mergers and acquisitions are listed below: By consolidating the regulatory requirements for M&A from connected sources, the (user) can create smart submission plans and facilitate the reuse of the plans. This AI-ML application will be able to correlate regulatory intelligence with internal precedence to suggest strategies for regulatory submissions for M&A to the user. The regulatory affairs team will plan and manage submissions using the BPM (business process management) tool using persona-based intelligent dashboards. This will promote connected business systems to seamlessly exchange meaningful data or information over intelligent and secure network systems. The idea is to bring the data required for regulatory submissions of mergers and acquisitions to a smart data fabric, which ontologies and logical frameworks can leverage to create regulatory submission outputs as per the submission plan. The approach entails automating structured content creation for regulatory submission using structured data. In this case, with

the help of the AI-ML algorithm, the available data will be converted into meaningful text for regulatory submissions. An automated authoring application will leverage a knowledge graph-enabled intelligent system equipped with built-in ontology to create NLG-based text output. This can be adapted to author regulatory submissions. These enablers will reduce dependency on human cognizance and reduce the number of resources that are engaged in the M&A activities. Industry 4.0 technologies will improve rigor in managing M&As, bring down the time required to plan transitions by leveraging real-time updates, tracking the regulatory status, and simplifying the business processes. Pharma companies can optimize the resources to focus on other core value-adding tasks.   The smart M&A processes will ensure a reduction in errors in the planning and management of marketing authorization transfer applications, leading to improved compliance with statutory regulations and assured patient safety. The transformation will have significant business benefits. It can reduce the total effort, thus saving costs and time. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 'real-world evidence' helps in transforming healthcare

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Real-world evidence is helping the healthcare sector manage data and cull actionable insights from it. 3 MINS READ Dr. Ashish Goel Lead, Global Evidence & Value Development You have these already downloaded We have sent you a copy of the report to your email again. Improving patient outcomes with insights from real-world data Data is central to the drug development process, understanding the efficacy of a drug, and improving patient outcomes. Real-world evidence (RWE), or insights from the analysis of real-world data, is particularly important. Based on data used by life sciences and healthcare companies to securely obtain, store, and analyze a drug or medical invention, RWE helps demonstrate the effectiveness of a drug or tool to treat medical conditions in a real-world setting. One of the main benefits of using RWE to evaluate drug effectiveness is that it provides a more comprehensive view of how a drug performs in the real world. It reflects the diversity of patients and healthcare settings in the real world and not just a clinical trial cohort. RWE can also help medical professionals identify subpopulations of patients who may benefit more from a particular drug. For example, it may reveal that a drug works better on older patients or patients with certain comorbidity, thus helping medical professionals make informed treatment decisions for improved patient outcomes. Safety is another aspect. Adverse events that occur in the real world may not be captured in clinical trials, and RWE can help identify potential safety concerns that may have been missed in clinical trial settings. Augmenting clinical trial data with RWE and data from mobiles and wearables In recent times, the use of mobile devices, wearables, and different mobile equipment to collect and store massive amounts of health data has surged. This data has the potential to allow life sciences companies to conduct clinical trials more effectively. They can help answer questions pertaining to medical unmet needs, natural history, and the burden of disease; identify potential biomarkers; and help shorten the duration of planned clinical studies. By combining this information with RWE, clinicians can efficiently determine the appropriate study sample size, and modify study selection criteria and clinical endpoints. All of this can help expedite the drug development process, which is time-consuming and expensive. Giving personalized medicine a booster shot Another area that RWE can give a boost is personalized medicine. Companies today are focusing on developing integrated solutions and moving "beyond the pill" to provide solutions based on the genotype of a person, rather than take a one-size-fits-all approach. With valuable insights into how a patient responds to a particular drug, RWE can play a key role in making personalized medicine

more effective. At a time when companies are under pressure to create more value for all stakeholders, it can help drive greater value for patients by enabling them to offer new value-based pricing. This emphasizes payment for a therapy or treatment only when it works for the patient. For instance, when approved in 2013, Sovaldi, the drug that cures hepatitis C, was priced at $84,000 for a course of treatment. However, after a cost-benefit analysis in patient populations, it was brought down to $55,000 in Canada and $33,000 in France. With cloud, it is now easier for pharma companies to derive huge datasets from a vast pool of sources. The best way to maximize the value of RWE is to successfully integrate disparate data types. Consider data on medical devices, wearables, genomics reports, data claims, clinic trials, and electronic medical records—all of which come in different types and sizes from different sources and which life sciences companies must store, search, analyze, and normalize. Managing these massive volumes of data and making them accessible for use is a big challenge. Healthcare payers and governments continue to face enormous data management and storage capacity challenges.   This is where cloud comes in, making it easier to integrate and access data from multiple sources. Cloud providers like AWS offers more. With AWS data lake, data can be stored as-is without the need to transform it into a predefined schema. What's more, the artificial intelligence and machine learning capabilities of leading cloud providers like AWS help process data for real-world evidence, with quick access to all types of data, such as genomics, clinic trials, and claims. They also enable the integration of new RWE data into existing data in the data lake. Advanced RWE analytics use predictive and probabilistic causal models, unsupervised algorithms, and machine learning to extract deeper insights from these data sets. By combining the power of cloud and RWE, pharma companies can drive technological innovations that can transform the industry and benefit patients. Leveraging TCS Real World Evidence Services for Tangible Outcomes TCS a Leader in Life Sciences Data and Analytics Services for Sales and Marketing: Everest Group Digital Therapeutics: Improve Patient Engagement in Healthcare Key Healthcare Trends For 2022 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 as the gamechanger to reimagine travel and hospitality

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overlays in real physical environments. Until now, this extension of reality was mostly through augmented reality or virtual reality (AR/VR) glasses or headsets, but the possibilities are many—it could be through contact lenses and other wearables as well in the future. What does this mean for travel and hospitality companies? They could use wearables like smart lenses with built-in AR-powered visual displays for virtual tours, gamified sightseeing, and hands-free navigation for tourists. Airports and airlines could use smart glasses with facial recognition or head and wrist gear with built-in cameras for faster security scans. Cloud can help travel and hospitality companies drive more value from these technologies. With its storage and computing power, cloud can help them exchange vast amounts of data gathered from wearables. Insights from the data can be used between connected devices for real-time decision-making and to provide personalized and connected experiences. Moreover, cloud-based platforms and solutions can enable no-hassles travel and health insurance coverage, easy health-check screenings, contactless payments, and other travel-related assistance and amenities. With cloud at the center, the travel and hospitality industry is embracing new opportunities in a remarkable way. Let's look at how cloud solutions can enable companies in travel and hospitality to meet customer and their needs: Leverage the potential of cloud to improve customer experiences and realize superior business outcomes. As we've seen, cloud offers opportunities for companies in travel and hospitality to swiftly innovate, deliver personalized connected experiences, and improve security. Additionally, through optimized resources, efficient operations, enhanced agility, and increased efficiency, cloud allows companies to be more sustainable. Hence, it is important to implement a comprehensive cloud adoption strategy to unlock digital transformation and maximize business value. And with the rapid innovation and evolution in cloud technology in travel and hospitality, companies can not only enhance customer experiences,deepen customer relationships, and build brand loyalty, but also improve business outcomes. The new paradigm in airlines retailing TCS travel and hospitality services on AWS Cloud Avianca Partners with TCS to Accelerate its Journey Technology in Logistics for PostNord's Purpose-led Transform 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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Digital Twindex: Digital twins to reshape world by 2035

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capability has proven crucial in industries such as manufacturing, where digital twins can anticipate machine failures and optimize maintenance schedules, reducing downtime and costs. Experts predict that these benefits will be democratized across many industries in the coming years, with survey participants pointing to connected, real-time healthcare and efficient energy management as the two use-cases that will most benefit human lives. In healthcare, digital twins of the human body can help ensure medical procedures are rehearsed and run smoothly, and enable highly personalized treatment. This will be the most difficult feat to accomplish, with surveyed experts believing a digital twin of the full human body is at least 10 years away for the majority of us, given the complexity, variations, and likely regulatory requirements. That said, individual twins of human organs, such as TCS' Heart and Skin BioTwins, already show the potential of future treatments. Futurists and digital twin experts noted widespread benefits from smart cities arriving within 3-6 years, potentially lowering energy costs and providing more personalized and seamless experiences around transportation, shopping, and other elements of daily life. Indeed, there are already several examples of cities, and even countries, creating their own digital twins. As benefits materialize, digital twins for municipalities will be in even greater demand, causing exponential growth. Connected cities will help bring about a new era of retail, with survey participants highlighting common digital twins in the space arriving early, within the next 3 years. Retail businesses will leverage DTOC (Digital Twin of the Customer) to predict spending patterns and preferences. For the consumer, true personalization will be accomplished with the ability to use their own digital twin as a platform to customize shopping experiences. In the home, which experts also estimate digital twins will become common in within 3-6 years, a digital twin could produce energy efficiency, convenience, and comfort, and improve safety conditions. The demographic realities of an aging population, which exists in many countries, will require a real-time form of interactive, non-invasive, surveillance, such as what digital twins can provide. This will be essential to realizing the promises of a smart home revolution around aging in place. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 =====================

Carbon labels – an automaker's road to net zero

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company Oatly and UK's meat substitute brand Quorn have carbon labels on their products. Automakers, however, have three main challenges in the carbon label journey. The first is the complexity of the automotive supply chain. Executives mostly struggle to gain complete visibility of their supply chains owing to the globally dispersed network of thousands of parts spanning across multiple tiers of suppliers. Second, the transition to electric vehicles (EVs) from internal combustion engines (ICE), along with the push toward connected and autonomous vehicles (CAVs), is leading to a rapid evolution of the supply chain network, with newer players and sources of material coming in. The final challenge pertains to the reporting requirements of emissions. A company's greenhouse gas (GHG) emissions are classified into three scopes. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect ones from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. While Scope 1 and 2 emissions are mandatory for a company to report, Scope 3 – which accounts for more than 70% of the carbon footprint – is mostly optional as suppliers are not mandated to share their data with the original equipment manufacturers (OEM). This leaves a gaping hole in the process and makes it difficult to measure supply chain emissions. Measure emissions better Climate goals are one of the top priorities of automakers for the last decade. A typical passenger vehicle in the US emits about 4.6 metric tons of carbon dioxide per year, which is just tailpipe emissions data. And this number would go up substantially if we were to account for carbon emissions from a car's entire life cycle. Here are a few pointers on how OEMs can drive the measurement of cradle-to-showroom emissions to lead the change toward carbon labelling and Scope 3 emission reporting: Establish the foundation – This covers the identification of relevant categories of emissions for the OEM, including the 15 categories of Scope 3 emissions outlined in the GHG Protocol. An exploratory screening process with high-level data, which is data at an aggregated or approximation levels, can help establish the GHG contribution in each of the categories and prioritize data collection. Separate calculation methods can then be used for calculating emissions for each activity based on data availability, quality, costs involved, relevance, and size of emissions. Ensure completeness first, refine later – Work with an agile mindset, use appropriate approximations or secondary data for the identified data gaps and strive to build a complete picture. Transparency is the key to stakeholder confidence and data quality improves as companies report those numbers year after year, fixing issues which may have gone unnoticed in the previous cycles. Leverage supply chain visibility and resilience initiatives – This includes leveraging frameworks from initiatives that were started by the OEMs during the post-pandemic semiconductor shortage aimed to identify car components with semiconductors and establish visibility of the Tier N suppliers. Bring in the ecosystem play to co-create: With key component suppliers – Establish a shared vision with an operating model of shared ownership to track, manage, and communicate data on the emissions. This would enable a common understanding of each other's data along with a view of the outcomes and incentives to drive the collaboration. Early success stories with one supplier can help onboard other suppliers. With start-ups – Accelerate the journey by leveraging startups that have solutions for Scope 3 reporting rather than starting from

ground zero. Build quick proofs of concept (PoCs) and fast-track experimentation. With other ecosystem players – Engage with the wider ecosystem, including environment disclosure platforms such as CDP (formerly known as the Carbon Disclosure Project) and forums promoting co-innovation like Innovate UK and The Catapult Network. Embrace new technologies – Use blockchain to improve data trust and traceability, graph technologies for supply chain network visibility and intelligence, AI-ML for data imputations, and cloud for solution hosting. The way ahead Carbon labelling is just one piece of the puzzle. It focuses on the OEM's commitment to make a product with lower CO_2 emissions. Having visibility of the overall emissions, and more importantly all Scope 3 emissions, will enable OEMs to assess the emission hotspots in the value chain, identify energy efficiency and cost reduction opportunities, pinpoint energy risks, and enable better sourcing decisions aimed at reducing emissions. The future manufacturing enterprise — Sustainable by design Innovation: Driving Sustainable Business Transformation Industry 4.0 in Manufacturing to Transform Supply Chain Operations Is Sustainability Sustainable? 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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over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Blog Rekha Natarajan Technology Head, Manufacturing and Utilities Business Group at TCS You have these already downloaded We have sent you a copy of the report to your email again. The first step of the digital transformation journey begins with automating manual, routine work. A powerful optical/intelligent character recognition (OCR/ICR) engine is at the heart of sophisticated automation. It helps robots become more perceptive to distinguish between different words, characters, buttons, and text fields embedded in digital forms. According to Gartner, 90% of large organizations across the globe will have adopted robotic process automation (RPA) in some form by the end of 2022. The rising adoption of RPA underscores the importance of OCR technologies, which convert images of typed, hand-written or printed text into a machine-readable format. These could come from a scanned document, a picture of a document, or even text that's visible over a photograph. While this sounds simple, OCR is one of the foundational technologies behind RPA implementation. Imagine a scenario where inputs are shared remotely and the RPA application is responsible for sorting the data, processing relevant fields and automatically sending the right information to stakeholders. Without OCR, a robot could never identify which characters to process, let alone complete the task in a fraction of the time taken to manually perform it. OCR adoption will grow as companies seek agility In the last five years, the OCR technology has been growing slowly but steadily. It now plays a massive role in reducing manual interventions across industries from financial services, healthcare, manufacturing to utilities. The result is reduced costs, greater process efficiencies, increased productivity, and better customer experience. More importantly, it makes businesses more agile and responsive in an unpredictable post-pandemic environment. According to Transparency Market Research, the global OCR market is anticipated to expand at a compound annual growth rate (CAGR) of around 15% between 2020 to 2030. OCR technology will be used across a variety of document types, including structured documents, such as surveys and exam papers, semi-structured documents, such as invoices and purchase orders, as well as unstructured documents, such as contracts and letters. It also helps process engineering drawings and pipe layouts, which are highly complex documents. Energy and utility companies can unlock value through digitization and OCR Utilities are prioritizing digitization to meet the constantly rising customer expectations. Digital transformation has the potential to increase an energy company's short-term and long-term earnings by 4% and 25% respectively. It's easy to see how OCR would benefit the highly regulated and increasingly complex energy and utilities sector. Utilities are closely monitored by government authorities and regulatory agencies, requiring constant documentation audits, and report submissions. Though RPA automates several of these processes, dependency

on paper-based processes remain. McKinsey had predicted a while ago that automation and digital technologies can help big oil companies unlock an additional billion dollars in value. OCR is likely to play a significant role in making this happen. To start with, OCR will not only accelerate provisioning of new services to customers but also resolve service disruptions through faster ticket processing and remote troubleshooting of cable and pipe layouts. Utilities can also accelerate invoice processing, automate compliance reporting, and digitize field notes for better collaboration. OCR will analyze the document images based on specific patterns and automatically extract text into a machine-readable format. The output can either be stored in the utilities' business systems and database or fed into the RPA engine and added to workflows for further analysis. Adding a new dimension to OCR with machine learning The expectations from automation are increasing every day. New technologies should complement the OCR process to extract high-quality information and insights and drive strategic thinking. With machine learning technologies and platform-based solutions entering the market, OCR continues to evolve, driving the hyperautomation concept. As utilities continue to invest time and resources to leverage these advancements, they also need to use the right combination of technology, tools and strategy to further their digital transformation journey. This will result in smoother processes, deeper synergies between digital and physical assets, and truly zero-touch process flows. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Enabling CSPs to Lead Digital Transformation

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ecosystem while decoupling their business capabilities using a microservices layer. Capabilities such as digital identity through OpenID Connect, device capability (identifying the device type and its supported features), device swap, payment management, account management and eSIM as a service drive immense business value. Through user-centric digital identity capabilities, CSPs will have the potential to not only target their existing subscribers, but also attract new customers including web channel visitors and family members of the current consumer base. The key here is the ability to understand user behavior across the open ecosystem and take control of the user journey at the earliest. CSPs should be able to mix and match such business capabilities at runtime to create a personalized user experience. To build such forward-looking business capabilities, CSPs have to revamp their IT architecture to include digital agents including APIs, microservices and business process management (BPM) tools. These agents give organizations the leverage to innovate and the agility to quickly respond to market changes. CSPs should treat APIs as assets that create business value and not as mere IT enablers. Enterprises can also consider an all-out API-only strategy to bring in a culture that inculcates an API-first mindset. This coupled with microservices platforms can help companies to effectively use their legacy systems while launching new features to market at much faster rates. A use case in which companies can leverage microservices to greater advantage is around data and analytics. When insights are fed to different touchpoints, they can increase the precision of personalization. With the help of microservices digital transformation, CSPs can tailor experiences by predicting users' next best action. Meanwhile, while APIs become the façade for CSPs' capabilities, BPM allows organizations to orchestrate customer journeys. The orchestration layer can be lightweight and not necessarily product heavy. APIs and microservices should ideally be free from process orchestration responsibilities to achieve a truly decoupled IT architecture. CSPs can build these partner neutral capabilities and leverage them to become leaders in the digital ecosystem, which will otherwise be dominated by partners. By effectively using APIs and microservices, CSPs can reduce the time to market, gain more flexibility for customizations and upgrades, and easily integrate services with third-party applications that drives continuous IT led business value. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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Driving Gig Economy Insurance with AI

The phrase gig economy was coined by well-known journalist Tina Brown to describe the flexible job market post 2008-recession. What started as a means of survival in the absence of a full-time job is today a $1.3 trillion economy in the US alone. Yet, despite their huge contribution to national economies, gig workers do not qualify for health, liability and disability benefits offered by traditional jobs. They have to buy their own protection and the open market has very limited insurance coverage options. Many are unaware that their personal policies will not cover them on the job. A majority of them remain uninsured or underinsured. It is time the insurance industry took steps to address this large protection gap. InsurTech and AI to the Rescue Traditional insurers have not been active in the gig market despite their popularity and vast loss data. General liability, accident protection and disability are standard products offered to employers in the commercial space. Though customized versions of these products are vital for the gig workforce, established players have not yet been able to serve the gig market on scale. By contrast,

InsurTech players are a step ahead in providing the desired flexibility and customization. They offer on-demand protection by the hour and the ability to choose limits at an affordable price to the gig workforce. To offer such benefits, they have relied on technology (predominantly AI) and external ecosystem partners. Additionally, InsurTech players do not limit themselves to statistical modeling of historical loss data for determining risk probability and impact. They collect vast amount of real-time data from the insured and the work environment using IoT devices and external sources. The data can yield insights with help from AI that can then aid insurers better understand customer habits and behaviors and enable them to assess the risk exposure for a gig even for a short time period. AI in the Gig Insurance Value Chain AI is transforming the gig economy and enabling insurers to serve this workforce across the value chain right from sales to underwriting and claim settlement processing. Here's how: Sales: Once an applicant is selected for a gig, insurers use AI to determine the risk exposure based on the nature of the gig and the claim history of the applicant. AI then makes recommends for insuring the applicant as well as coverage limits for the gig. Underwriting: AI is a key enabler at the core of the underwriting process in gig Insurance. Without AI, the flexibility to activate protection on demand and support pay-as-you-go models that suit the ad hoc nature of gig work would not be possible. AI analyzes real-time and historical data from multiple sources to underwrite in a few seconds the risk associated with the gig. Claims: When placing a claim, gig workers can describe the accident and share pictures of the accident through chat or post it on the claim portal. AI can help complete the FNOL process and assess the extent of damage. It can also identify and flag fraudulent claims. AI is the key reason legitimate claims are settled promptly, and instant payouts made possible. Customer Support: The average gig workspace is technology-driven, most or all of this business is conducted online on mobile platforms. As a result, chatbots and virtual assistants have evolved as the preferred channels of communication with customer care. AI technologies such as NLP and Deep Learning models power these bots to understand the intent of the users and respond to them. AI and the Gig Insurance of the Future Advances in AI, combined with Robotics and IoT, are strengthening the technological capabilities of industries. Many complex tasks, once considered impossible for machines, are handled with ease today. Many have predicted that AI would kill the gig economy and the machines would take over. Consider the ridesharing (48%) or delivery (57%) services, which constitute a big share of the gig workforce in the US. Autonomous cars driven by AI could potentially disrupt these gigs in the future. However, the more important question here is, can such expensive and high-end technologies be used for blue-collar jobs? Can the gig companies afford these machines? Currently, the brief answer is - no. However, even if they did, there would still be an autonomous car on the road, with its goods/passengers or a cyber gig worker waiting to be insured. Gig insurance is here to stay irrespective of what they insure and how, and AI will play a much bigger role in risk prevention rather than improvise it. Conclusion AI is a cornerstone technology that has contributed to the growth of gig insurance. It has enabled insurers to fulfill the needs of the gig workforce and reduce the protection gap. In a few decades when AI becomes mainstream, it will perhaps disrupt the gig economy run by humans and initiate an era of a gig economy powered by machines. Going forward, the gig insurance that protects humans today may very well serve

and protect the machines that gig operations use. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Open Radio Access Network (O-RAN): Creating Waves

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it never shared the fate of the telegram. Radio has begun to make waves again in a different technological avatar— the next-gen RAN, the open radio access network (O-RAN). The next-gen RAN is empowered by principles of intelligence and openness, and the architecture lays the foundation for building virtualized RAN on open hardware and cloud with embedded AI-powered radio control. This provides telecom companies with the flexibility to set up software-defined mobile networks, reducing the dependency on hardware manufacturers. O-RAN architecture is based on standards defined by the O-RAN ALLIANCE, a collaborative group set up by operators including Deutsche Telekom, Orange, Telefonica, TIM, and Vodafone. It fully supports and complements standards promoted by 3GPP (the global mobile broadband standard) and other industry organizations. Overcoming the Challenges of Traditional RAN RAN is built as a closed box that can only connect and communicate with adjacent components. Innovations and network enhancements almost entirely depend on hardware capability. The radio unit of legacy RAN, which is a purpose-built hardware dealing with the lower physical layer, has been exposed to more extreme environments than any other element in telecom network ecosystems. With O-RAN, users can monitor the system at a more granular level, whether at the chipset or RF (radio frequency) mechanical levels. This increases the quality of service, brings down the cost of maintenance, and reduces the overall rate of failure. Moreover, O-RAN provides cloud-scale economics and agility to RAN across technology types (3GPP). It gives telecom operators immense opportunity to add RAN to the cloud-transition plan when making their cloud strategy. Moreover, the next-gen RAN uses open interfaces to allow smaller operators and vendors to introduce services or customize networks to fit individual needs. These open interfaces also enable a more competitive and vibrant supplier ecosystem through multi-vendor deployments. At the same time, these designs provide innovation with increased speed and democracy. Building Intelligence into RAN With the dawn of 5G, networks have become increasingly intricate, requiring denser, richer, and more adapting devices. To build networks with the necessary capacity, they must be self-driving and take advantage of machine learning to automate various processes and reduce operational expenditure. Infusing RAN with intelligence at every level allows for deeper learning and better usage of the system as a whole. While the new technology has many takers, frontline practitioners feel that O-RAN comes with a significant amount of disintegration. This happens because the architecture splits pieces apart, which raises questions about the product's overall stability and ease of operability. However, disintegration offers immense possibilities to detect and analyze defects at a granular level. With O-RAN, every mechanical and electrical component's behavior can be profiled separately, and overall failures can be predicted independently. Assembling the ORAN Ecosystem Disaggregated RAN computation of FCAPS (fault, configuration, accounting, performance, security) is the way to deal with heavy computing from operations. FCAPS-related automation and decision-making need to be handled with hierarchy. A nano-monitoring approach will ensure fault prediction. The deeper the events are brought under vigilance, the closer the event sequencing will get to its origin. This gives more headroom in terms of time to deal with failures and anomalies, and at the same time, stop the whole process that created the fault. A cognitive operation on its own will be impractical for an O-RAN ecosystem. The O-RAN architecture expands the SDN concept of decoupling

the control plane (CP) from the user plane (UP) into RAN, while ushering in integrated intelligence. This enhances the traditional RRM functions by introducing the hierarchal RAN Intelligent Controller (RIC) with the A1 and E2 interfaces. Decoupling allows the UP to become standardized because the CP carries most of the variability. It also allows for advanced control functionality and altogether creates an ecosystem that's easily scalable, cost-effective, efficient, and has better radio resource management. One up on the OEM Getting the real benefit of O-RAN lies in the art of dealing with the best-of-breed in terms of choice of material, electronics, RF components, software stacks, and operating systems. It brings in limitless opportunities for automation to make the whole system behave cognitively and bring in human-like self-immunity. A nano-monitoring approach of cognitive operation will help to predict faults and make the O-RAN ecosystem flawless for any user. The impact of O-RAN for organizations lies in further modernization and access to a scalable intelligent platform. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Synergizing the power of Mainframe with Enterprise Cloud

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challenges pertaining to legacy modernization and tech refresh. Mainframes can coexist with cloud by extending, exploiting, and extrapolating cloud, giving IT leaders a greater advantage to drive business outcomes. Here are four ways mainframes can leverage the power of cloud: As enterprises drive digital transformation to improve their time to market, there is an increasing need for an agile, flexible technology backbone. There is an equal need to focus on economic sustainability which makes it pivotal for enterprises to invest in initiatives that benefits their business and end consumers. Cloud technologies entered the enterprise agenda by offering a faster, smarter, and lighter technology infrastructure. Mainframes can coexist with cloud as its integration capabilities are priming fast to provide enterprises agility, scalability and flexibility to meet the dynamic demands of Business 4.0 enterprises. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Connected Labs: Charting a Neural Future for the Chemical Industry

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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. Blog Rahul Mylapally Business Analyst, Manufacturing, TCS Prudhvi Kumar V Assistant Consultant, Manufacturing, TCS You have these already downloaded We have sent you a copy of the report to your email again. The lab ecosystem and its myriad intricacies are often not discussed in the business world. Managing all aspects of a lab as an integrated ecosystem is indeed challenging for businesses, especially because R&D is often considered a black box with unquantifiable returns on investment. A common question that enterprises from the specialty chemicals, coatings, or food ingredient industries ask is how they can better use the vast volumes of laboratory data they generate. How can such information drive better decisions and what approach must firms take to address the challenges of lab management? We explore these questions and the common challenges faced by chemical companies through a neural approach. Present-day challenges of chemical firms Generally, labs serve two key functions – one where a significant part of the research and development happens, and the second is where the sample is tested for quality assurance during production. This often limits the collaboration between research and manufacturing teams. Today, a researcher in a chemical R&D lab has to sift through a large amount of data and reports and deals with various constraints and limitations of testing in physical labs. With the proliferation of digital tools and techniques, data management is becoming increasingly important. Typically, labs contain various instruments, lab management software that interface with enterprise systems, and an inventory of lab supplies. The diverse base of instruments also contributes to the vast amounts of data generated in a lab, and with data availability limited to instruments, the value of data is not fully unlocked. Finding the right data manually can be time consuming and accessing quality data for informed decision-making is always a challenge. These reasons make data management in labs a complex and laborious task.   On the other hand, the ever-augmenting portfolio of applications utilized in labs is making the technology landscape more complex. The lack of standardization in instrument onboarding and integration, inadequate management of lab supplies, and absence of instrument availability add to the challenge of managing instruments and interfaces, making lab management more cumbersome and inefficient. The neural approach To better manage their data, chemical companies can adopt a neural system to consolidate information from disparate labs, provide intelligent insights on products, and ensure collaboration with partner labs and ecosystem players. Such a system forms the core of Neural ManufacturingTM, a thought leadership framework that propounds having an intensely networked set of partners aligned to a common purpose. The value chains of a neural system are responsive, adaptive, and personalized with intelligence built on the

edge of the networks and rely on automation and machine-first delivery models. So, how can chemical companies
leverage neural behaviors and traits to drive operational agility in the labs of the future? Connectedness: An enterprise portal or an asset performance management based approach for equipment onboarding, coupled with an internet of things (IoT) platform, will provide end-to-end connctivity for a lab. This will pave the way for creating a centralized data repository or a data lake. Data harmonization will ensure that data is available wherever and whenever required for informed decision-making. Intelligent and cognitive: Once data is available, artificial intelligence and machine learning-based (AI-ML) models can be leveraged to extract key insights and identify potential improvement opportunities. Instrument data can be used for predictive diagnostics to keep a check on maintenance activities and possible alternatives. With an IoT platform in place, lab activities can be monitored remotely without any interruptions. Additionally, reporting dashboards can be created to provide visibility into lab operations. This will ultimately lead to a data-driven approach for managing labs. Automation: By leveraging cobots, complex and hazardous experiments can be automated. Electronic lab notebooks (ELN) can digitalize and automate the data gathering process and help researchers move towards a paperless lab environment. Augmented reality can help in guided experimentation, smart chatbots can provide support for natural language-based queries, and virtual reality can support in assisted training and troubleshooting. Final thoughts Although we see chemical companies leveraging digital technologies across the value chain, from procurement to after-sales, there is a need to bring R&D into the fold as well. By adopting neural traits, the R&D function can be transformed from a siloed black box entity to a digitalized and integrated system to calculate and realize returns better. Adopting a use case driven approach to identify and transform operations one step at a time, can help chemical organizations and their stakeholders in their transformation journey. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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-powered CRM: Path to Driving Customer Engagement in Life Sciences

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teams can: Advantage AI AI-enabled applications are at various stages of maturity. Life sciences organizations need to explore, identify, and prioritize use cases and channels to engage the best option for driving customer engagement and delivering human-like experiences with embedded AI. Apart from spearheading process efficiencies, life sciences companies can utilize AI-enabled CRM to gain a competitive advantage with valuable, near-real-time, and actionable insights into customer behavior and competitor data. It can also help tailor multichannel marketing campaigns for HCPs to increase marketing reach. Life sciences organizations can leverage AI to analyze multiple data points, including demographics, consent and preferences, geographic proximity, and call history, to gain recommendations on preferred messaging, channels, and customer segments. Let AI guide you to success CRM vendors are expected to continue with AI innovation. The industry may see AIOps and embedded AI going mainstream in CRM applications. Enterprises would stay on to work on the security of AI, while continuing to explore areas of integrated social CRM, self-servicing models across channels, advanced image analytics, efficient content management and so on. Organizations that wait for AI perfection may miss the current opportunity and potential, especially for businesses that want to stay ahead in the competition. Going forward, AI feature would become more prominent compared with all other CRM features in this digital era of marketing. However, human interactions are still highly valued as trustworthy and when used along with AI it will help create a better customer experience. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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Data: The Foundation of AI-Driven Transformation in Manufacturing

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Mehata Kondamudi Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Blog Naveen Mehata Kondamudi You have these already downloaded We have sent you a copy of the report to your email again. The tremendous increase in processing power and decrease in data storage costs in the last decade have fueled the growth of AI in real-world applications. A Gartner survey revealed that 66% of organizations increased or did not change AI investments since the onset of COVID-19, while a McKinsey report predicted that AI can deliver additional global economic activity of around $13 trillion by 2030. AI, which forms the key technology backbone of manufacturing organizations, has evolved so much that it builds end-to-end intelligence in the value chains of firms. In product innovation, for example, AI supports model-based product development, digital twin, and seamless integration and collaboration of systems across the product value chain. AI not only provides manufacturing organizations the much required agility and resilience, it also enriches the user experience in product development and helps in supervised autonomous decision making. AI can be effectively deployed across multiple functions such as: • Warranty claims analysis • Sales hit ratio analysis • Regulation impact analysis • Cross-functional process optimization • Organizational change sentiment analysis • Defect root cause analysis (RCA) But there are some prerequisites to reap the benefits of this technology. Data forms the foundation of any AI initiative. The quality and quantity of the training data determines the effectiveness of the AI models. Today, organizations generate significant amounts of data, which is key to making manufacturing agile, responsive, and adaptable. But data is not AI-friendly, as it is disconnected, not harmonized, or validated. Typically, the input data for any AI model needs to flow through these necessary but time-consuming preparatory steps: Collection Cleaning Correction Conversion Contextualization Apart from quality and quantity, clean data should precisely reflect the broad spectrum of possibilities across the entire value chain to make AI models robust. What is required is a continuous flow of digital data across the ecosystem, transforming, evolving, and maturing over time. Such data will enable AI models to identify and learn patterns, which would help enterprises solve problems in a holistic manner. This interconnected digital data spread across the value chain

providing inputs for analytics and AI, are what we would call digital thread for an organization. AI and data are also core to Neural ManufacturingTM, an approach for manufacturers and their ecosystems to become connected, collaborative, and cognitive. It drives agility and exponential growth, providing firms an intelligent edge. Digital thread in manufacturing organizations The concept of digital thread means connecting people, processes, assets, and their characteristics and dependent data throughout the value chain of the organization. Typically, in manufacturing, this information is managed in silos across multiple enterprise-wide systems such as product life cycle management (PLM), enterprise resource planning (ERP), supply chain management (SCM), and more. Digital thread forms the backbone of these systems, connecting and integrating them, which generate clean and AI-friendly data. But digital thread is not limited to systems integration. Listed below are the key building blocks of a digital thread and how they impact data quality: Model-based systems engineering: Data in common language for easy interoperability across all the systems involved in the product life cycle Closed-loop processes: Data improved with continuous feedback validation Co-innovation platform: Harmonized, governed, and readily available data which provides a holistic view to the research and development (R&D) department to improve products Analytics-based reporting: Easily consumable data with pre-mapped relationships End-to-end integration: Connected and continuous data flowing seamlessly across the PLM, ERP, and SCM systems Overall, digital thread provides AI applications with a data lake with clean feed for ready consumption. In fact, depending on the application and industry, manufacturers can choose one critical block at a time using an agile approach to reap quick benefits. Many narrow AI tools can help firms in their digital transformation journeys, which would trigger a virtuous cycle - simple AI systems that help enterprise systems generate superior quality data for advanced AI systems that can provide insights, offering enormous value in return. According to the Gartner Hype Cycle for Artificial Intelligence, 2020, AI industrialization and AI democratization are two megatrends that provide late AI adopters a level playing field by making AI tools more affordable and easily available. This has enabled many organizations to leverage their AI capabilities to build machine-first operating models, giving them a competitive edge and also enhancing the value of the key differentiator – data, now more valuable than oil or gold. Organizations that resist adopting data-centric digital transformation will lose their competitive edge, putting them on the path to obsolescence. So, a digital thread is critical for organizations, especially now, when digitalization is the new normal. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

7 Ways to Fuel Your AI Projects

Blog Nagarajan Karuppiah Head of ML and AI CoE (Retail) You have these already downloaded We have sent you a copy of the report to your email again. Lured by success stories, enterprises are willing to adopt AI. According to a recent report, adoption of artificial intelligence (AI) in retail is projected to leap from 40% to 80% in three years. However, Gartner Inc. predicted that 75% of AI projects will remain at the prototype level as AI experts and organizational functions cannot engage in a productive dialogue —a surprising forecast despite all the buzz and talk about AI technologies. Unclear business cases, lack of quality data, and technical infrastructure challenges are some common barriers to successful AI implementation. Here are seven ways how enterprises can escape from getting stuck in the proof of concept stage and scale their AI projects with confidence: 1. Find the 'Why': Identify AI Business Cases Unclear business cases are significant barriers to AI implementation than lack of technology capabilities per se. Enterprises need to identify the right problem statements to demonstrate quick business value. To build a strong business case, there should be clarity on the following: what is the objective of the project; what technology framework will you leverage; who will use the solution; and how will you deliver it. 2. Acquire the Right Data While most organizations use their

enterprise data to deliver intelligence to AI projects, those organizations leveraging external data can deliver high quality predictions and early warning triggers to business teams. External data can be acquired through external contracts with market intelligence companies such as Nielsen, social data aggregators, public data sets available through government organizations, and APIs that publish weather data, commodity prices, micro and macro-economic indicators. 3. Escape the Proof-of-Concept Purgatory For successful AI programs, focusing on the granular aspects is key. Once the AI goal is identified, acquire clean data at the required granularity and apply the right technique for constructing the AI model. Iterations can minimize errors and help in accurate outcomes. This can be followed by business value amplification and the generalized models can be leveraged for subsequent reuse. To keep the momentum going, you need to keep pace with the rapidly changing nature of the underlying technology, look at the right avenues for continuous innovation, and overcome the fear of failure and lack of trust within the team. 4. Track your Progress Determining the value of an AI project requires close evaluation of on-the-ground scenarios and trade-off analysis to arrive at the base opportunity value (BOV) of the project. Broadly, BOV computation focusses on direct benefits such as campaign effectiveness, marketing ROI, revenue uplift, margin uplift, and productivity improvements and optimization. Organizations can visualize whether they are making progress on their AI journey by analyzing the following: How many new ideas did they try in the last few months? How many of these ideas were successful from a business perspective? 5. Mitigate Technical Debt Enterprises incur a lot of technical debt when they succumb to the pressure to move fast. While it is almost impossible to eradicate technical debt altogether, here are a few guidelines to reduce or mitigate it: Legacy-based enterprises can leverage semantic views or data virtualization options by keeping the data where it is and develop wrapper views on top of it for any AI projects. Performance considerations are vital in this approach and it works for lesser or moderate volume of data These enterprises should also explore edge computing, pushing most of the AI models execution very close to where they are needed. Modernization path enterprises can adopt microservices-based data exposure at different applications for insights. Additionally, they must use cloud-native AI solutions and out-of-the-box (OOTB) algorithms. 6. Embrace Hardware Innovations Advancements in hardware is speeding up the run time of algorithms, making it possible for retailers to get real-time contextual insights quicker than ever before. Higher adoption of graphics processing units (GPUs) delivers greater performance results and shortens the learning time significantly. IBM's and Intel's neuro chips, Microsoft's field-programmable gate arrays (FPGA), and Google's tensor processing units (TPUs) and recent advancement in quantum computing will play a significant hardware role in the future of AI projects. 7. Fail Fast, Fail Early Now-a-days, most enterprises across the globe adopt agile, expecting incremental results. Incubation period in AI projects are little longer and retailers must be ready to hit some blind alleys. They need to decompose the problem into smaller chunks for easy experiments, identify the exit criteria for each logical phase of experiments, leverage open source algorithms, extrapolate business outcomes, and be cost conscious. Even if the experiment fails, they need to document the results and reasons. Conclusion AI is fast making inroads in every business and will continue to disrupt the

status quo over the next couple of years. However, picking the right spot to apply AI is a key determinant of program success. Now, every moment of an AI project is captured and made available for all programs centered around AI for good goals to solve pressing societal challenges. Unicorn startups are already leveraging this data for applications such as more accurate weather forecasts to guide farmers for their day-to-day operations. Data availability, hardware innovations, and newer set of deep learning algorithms will continue to dominate the marketplace and create avenues for exploring newer business opportunities and scale for higher adoption. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Drive Digital Transformation by Deciphering Legacy Applications

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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. Alpana Shah You have these already downloaded We have sent you a copy of the report to your email again. Organizations globally are focusing on digital transformation since they play a crucial role in revamping businesses. The first step towards modernization involves studying the underlying business rules and logic of legacy applications thoroughly. The rapidly aging legacy technology base increases risks and is also expensive to maintain. It is difficult to diagnose and address critical issues if legacy applications are not analyzed and understood. The most compelling reasons for organizations to modernize their IT landscape is the inability of legacy systems to meet dynamic business requirements, and the fact that they lack minimal business intelligence. Nevertheless, it is important to analyze application codes and extract the buried business functionality since these help in rationalizing the organization's legacy portfolio, enabling the understanding of dependencies among components. The valuable insights gained from this kind of an analysis can be leveraged to facilitate regular maintenance related activities. It will also aid in completely re-engineering the legacy application using modern technologies. Enterprises are keen to adopt automated solutions which make extracting and documenting the underlying business logic easy since legacy code bases are voluminous and complex, and there is an increasing dearth in the availability of skilled Subject Matter Experts (SMEs). Technical Challenges and Solutions Incomplete understanding of business rules will have a long-term impact and adversely affect maintenance and other support activities. Some challenges will need to be addressed to reap maximum benefits from the automated solution and these include a complete understanding of the business functionality built into the legacy applications. The challenges are as follows: Benefits of an Automated Approach Analyzing applications to discover the transactional flow and the relationship of interdependent components can help organizations effectively manage and maintain their IT portfolio, increasing their chances of executing critical projects successfully without disrupting business operations. However, the sheer volume and complexity of legacy application codebases make manual implementation tedious and error prone. Automated product-based approach will help in generating the complete documentation of the application in the least possible amount of time, bringing down the total cost of ownership. The benefits have been mentioned below: Paving the Path towards Digital Transformation The insights gained by scanning the source code should be updated periodically with the latest versions. The insights stored in the repository can be synced automatically, and new reports can be generated afresh as and when required. The extracted insights from the codebase can serve as the base for organizations seeking to modernize their legacy applications. A comprehensive knowledge repository built though automation can be used to build applications in the target modern technology, in alignment with business goals. To know more about cognitive code analysis solution for your legacy applications, contact us at mastercraft.sales@tcs.com. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Register

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proliferation of systems of engagement and a multifold increase in sources of data that need to be captured and analyzed on a real-time basis. Enterprises that can capture data and related changes in real time can unlock new customer interaction opportunities hitherto not possible. This capability can be used for real-time analytics, gaining faster insights for better decision making and immediate response to business events – providing a unique competitive advantage. Challenges in data replication One of the key challenges that enterprises face is establishing reliable, low-latency mechanisms to capture the data triggered by change events, such as inserts, updates, and deletes from heterogenous sources. Setting up these services and building an end-to-end solution is cumbersome and has long lead times as each source needs to be looked at separately, along with its structure and nature of data. And, implementing such solutions require licensing third-party tools, building the infrastructure foundation, and diverse skill sets. Given this complexity, these solutions become difficult to maintain and manage - driving up the total cost of ownership. Deploying the right solution Change data capture (CDC) is an approach to data integration where change events are captured from various source databases and replicated to a data destination such as a data warehouse. An optimal solution should be easy to configure, accommodate the growing number of data sources (on-prem and cloud), and provide the ability to replicate to multiple data destinations. Flexibility is important as the solution should adapt to a wide range of use cases, such as capturing event data on a real-time basis, moving data from multiple sources to a data store, and database migrations with minimal downtime to applications. A robust change data capture and streaming solution helps: Synchronize data across disparate sources reliably and with minimal latency to provide real-time streaming data for analytics, enabling better insights and informed decision making Provide serverless architecture to help scale up and down seamlessly with minimal downtime, and without having to provision or manage resources, addressing the challenges of traditional on-prem solutions and total cost of ownership Create easy-to-use setup, configuration, and monitoring experiences enabling faster time to value Implementing and managing CDC and replication services A trusted global system integrator and managed service provider can bring in significant value for enterprises in their growth and transformation journey. Deep understanding and experience on various data integration patterns, change data capture and replication solutions, the ability to handle integrations across the ecosystem, and managing and accelerating the cloud journey are key expectations from a managed service provider. A global system integrator can bring to the table the following key tenets to implement a robust solution: In-built security and access mechanisms to support multiple secure, private connectivity methods to encrypt and protect data, both at rest and in transit Standardization, normalization and unification of every event's data types from the source database type into a unified streaming type to allow downstream processing in a source agnostic way, thereby enabling easy addition of new data sources with minimal changes Integration with other data platforms and services allowing ease of usage across the ecosystem of tools and platforms In-built flexibility and scalability to be accurate and reliable, with transparent status reporting and robust processing flexibility in the face of data and schema changes Finally, the contextual knowledge of an enterprise's business content, domain knowledge, data estate, volume of data, frequency of events

to be captured, integrations and transformations required, and the foresight of its vision to choose the platforms and services that can enable realization of business value from data through operational reporting and real-time analytics, are also important criteria. Accelerated business value A cloud-native CDC and replication service, such as Google's Datastream, enables real-time analytics by synchronizing data across heterogenous databases, storage systems and applications reliably, and with minimal latency and downtime. The serverless architecture seamlessly and transparently scales up or down in real time as data volume changes. It is integrated with dataflow CDC templates and data fusion replication to provide an end-to-end, flexible solution that makes data replication seamless. It also provides the security, reliability, and the transparency that companies are looking for to accelerate value from data and use it for competitive advantage. Read more. For more information please write to BusinessAndTechnologyServices.Marketing@TCS.COM. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 =====================

Deriving Value from Data with Cloud-native Data Integration

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and portability to build standardized data integration solutions across hybrid and multi-cloud environments, if the underlying technology is open source Built-in connectors to a variety of modern and legacy systems, along with personalized options for internal library of customer connections and transformations, that can be validated, shared, and reused across the organization to generate value Real-time data integration from transactional and operational databases, and batch integration to run high-volume data pipelines spanning file systems, object stores, databases, SaaS, and legacy systems Other aspects to consider include provisions for collection and aggregation of all business, operational and technical metadata for data lineage identification and root cause, provenance analysis for data operations. A flexible pricing model based on usage, use cases and data integration needs, helps to drive faster realization of business benefits and return on investment. Accelerated business value A cloud-native enterprise data integration service holds the rich promise of enabling accelerated decision making as well as achieving value from data such as data monetization and new revenue models. The fully managed service model and the standard connectors reduce the total cost of ownership by following an iterative approach and making it easier to implement and maintain. Transparent and integrated customer data offers insights into current state customer engagement, which gives scope to improve customer experience and therefore brand equity. Managing data integration services A trusted global system integrator and managed service provider can bring in significant value to the table in the data modernization journey of an enterprise. An understanding of various on-premise pipeline and integration platforms and the ability to identify suitable patterns required to accelerate the cloud journey are key assets to expect from a managed service provider. Likewise, building the ETL (extract, transform and load) /ELT (extract, load and transform) pipelines requires very careful planning, execution, and experience, which may not be possible for internal IT teams. Finally, the contextual knowledge of an enterprise's volume of data, integrations, transformations required, and the foresight of its vision to choose the platforms and services that can make the enterprise future-ready is also an important criteria when seeking a managed service provider. Our expertise in Google Cloud Data Fusion, a market-leading cloud-native data integration solution, can enable you to take advantage of its capabilities to build and manage data pipelines, and build scalable data integration solutions as part of enterprise-wide data modernization efforts. Read more: https:// cloud.google.com/blog/products/data-analytics/real-time-cdc-replication-bigquery For more information please write to BusinessAndTechnologyServices.Marketing@TCS.COM.   The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

Employee-centricity cultivates a sense of belonging in TCS

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not only to its employees but also to their families. Likewise, TCS employees consider TCS and their fellow employees as extended family. A culture of mutual belief that has been built over the years has cemented the bond between TCS and its employees. What do you love the most about being a TCS employee? There are multiple things I love about being a TCS employee. The organization has a strong inclusive culture that promotes a sense of belonging. The work is innovative and one that lets you leverage and see the emergence of cutting-edge technologies. In terms of career and personal growth, there is a strong emphasis on self-development via a best-in-class talent development system that promotes reskilling as well as upskilling. TCS boasts of a culture where employees are actively encouraged to share their inputs and suggestions that make them feel valued and respected. Last but not least, acknowledgement and recognition are in-built in this talent development system and serve as strong incentives to continually push the envelope, be creative, and be consistent. What roles and goals have been assigned to you in the past and how has your experience been? I developed expertise in identifying, seizing, and utilizing opportunities to improve operations, as well as to increase effectiveness while meeting corporate strategic objectives in several domains of IT infrastructure. There are various evaluation parameters through which TCS recognizes associates who display the potential to advance to senior positions at an early stage. I am glad that I was encouraged to assume higher responsibilities. It helped me grow in confidence and was a boost to my overall professional growth. Did you ever go through a rough patch or a challenging situation? How did you work around it? Yes, there have been challenges and testing times and I am thankful to my supervisors and the team for having played a significant role in grooming me both as a person and as a professional. Apart from providing the means to learn, perform, deliver, and grow, they have been my confidants. I have never hesitated to seek their guidance and inputs wherever needed because of their approachable nature. The workplace has been collaborative, thanks to my supportive colleagues. Over the years, they have indeed become my extended family. As an experienced professional, what are the key promising factors that you have come across in TCS? There are various avenues which empower TCS employees to realize their potential. TCS learning and growth opportunities in trending technologies across multiple domains are unmatched. The Talent Development team at TCS is one of the best in the industry and so is their state-of-the-art learning ecosystem. TCS is committed to helping its employees achieve their learning goals via well-designed web-based training, webinars, etc. These channels help employees hone existing skills even as they acquire newer ones. Additionally, initiatives like Fit4Life, Purpose4Life, Maitree, etc., help an employee seek purpose even outside a work environment, which in turn helps them develop a well-rounded personality and eventually brings meaning to how they approach work itself. What is an important life philosophy that you stand by? Stay relevant by continually upskilling yourself, make well-informed career choices, always strive to deliver the best outcome, never give up even when the going gets tough, and forever try to be the best version of yourself. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Register for our email newsletter to get the freshest takes, straight to

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standpoint. However, the prospects for this candidate had dwindled by 2015, as by then, there were a few lakh Java or .NET experts. By the start of the last decade, big data had emerged significantly. Additionally, the developers in demand by 2015 were the ones who knew how to work with Hadoop, Hive, Impala, Pig, or Spark. Now, at the start of this decade, DataOps is one of the trending technologies that's poised to take off. Data is regarded as the new oil, and rightly so. Hence global enterprises are trying to harness its enormous benefits. Big data systems help us work with a large amount of data. Cloud is for future storage requirements while Containers and DevOps aid us in working with data at a faster pace. But what do we do with the data in the legacy enterprise warehouses? Do they need to be discarded? Certainly not. So, how do we transfer it to the cloud? This is where DataOps comes to our rescue. One company that has become synonymous with DataOps is StreamSets. Their products such as Control Hub, Data Collector, and Data Transformer have revolutionized the way we can work with data. Their products have democratized the data. A developer, a business analyst, a DBA, a data scientist, or anyone even with no coding background can easily pull data from various databases, move it to big data lake or cloud data lake, and start working on AI/ML models, Excel or tableau reports, etc. If you are a passionate data engineer, you can leverage your Scala/Python/ SparkSQL skills to do complex transformations using Streamsets Transformer in a much faster and easier way. All of this sounds too interesting to be true, doesn't it? Trust me, while it is interesting, it is also easy to learn and work it too. So, here's the big question: Are you willing to learn a technology that is taking the market by storm? It is even more encouraging to learn DataOps given that while there is a huge demand for it, there are very few developers across the world. Here are some exciting positions at TCS to further your career in DataOps. Data Engineer Data Architect Streamsets Developer Platform Engineer Platform Architect The TCS opportunities in DataOps are enriching if you're looking to build a fulfilling career in information technology. TCS employees get a chance to upskill themselves in DataOps via in-house training. They also get to deploy learnings derived therein, in a real-time project. We are partnering with several customers across geographies to scale up with DataOps. You too can reap the abundant benefits of a DataOps career by joining the TCS family. To know more about fulfilling as well as rewarding opportunities, keep watching https://ibegin.tcs.com/iBegin/. It would be great to know your thoughts and insights on this blog. Do send us your views via an email to careers@tcs.com. We wish you the very best in your career. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Artificial Intelligence: Amplifying Customer Experience in Logistics

What was once considered to be in the realm of future technologies and existed only as concepts and prototypes is now a reality. Ideas such as autonomous vehicles for doorstep deliveries have become necessities in a world dealing with the global health crisis caused by COVID-19. The crisis disrupted supply chains, causing delays and backlogs in fulfillment of orders as demand for logistics to deliver essential commodities and e-commerce goods rose significantly. Lockdowns and international border closures stretched the supply chain further adding a new layer of complications to operations. Amidst this challenging situation, social distancing has become a norm and remote working a necessity, giving rise to an imperative need for digital interventions. Moreover, as we adjust to this new reality, enterprises are also reexamining their business models to align to a larger purpose-led workplace culture. The global logistics market is expected to grow at 6.5% CAGR during the forecast period 2020-2028 factoring in the disruptions caused by COVID-19. Much before the pandemic set in, many third-party logistics players had

already started investing in smart technologies like artificial intelligence (AI) and robotics to keep up with the rising demand for fast deliveries as well as the growth of e-commerce. But with more innovative options like drone, autonomous trucks, autonomous delivery robots coming to forefront, the entire logistics ecosystem will embrace digitalization, along with the much talked about supply chain visibility, which will aid in enhancing customer experience (CX). Based on our research and market analysis, we have seen that large logistics players, specifically in North America, Europe and APAC, use AI capabilities for dynamic demand-based pricing and planning system, freight management with real-time data, optimization of transport routes and autonomous robots in their warehouse as well as for last-mile deliveries. The rise of e-commerce volumes and investments in things like automated sorting centers and route optimization have been the key elements in increasing the revenues and bringing the costs down for large logistics players during the pandemic. Our research has shown that supply chain organizations will increase investments in applications that support AI, internet of things (IoT) and advanced analytics (AA) capabilities over the next 3-5 years. In line with this prediction, we have observed that organizations are already investing heavily in advanced technologies with focus on autonomous mobile robots in warehouses. In fact, there are use cases where renowned logistics players have deployed robots or cobots and drones in their warehouses. Some cobots work with humans for picking and palletization, some use computer vision for scanning warehouse shelves, some use robotic arms to move items or sometimes entire shelves from source to destination and drones are being used in those scenarios where shelves in warehouse are not accessible because of height. Early investments in AI and robotics have already benefitted an incumbent North American player to reduce operational cost by about 20%. The company automated its processes such as sorting, ordering, picking, packing, transporting, warehousing, delivering, checking inventory and routing. As health, safety and hygiene are now taking precedence, customer-centric organizations have started implementing autonomous vehicles and drones for last-mile delivery. There has been a significant acceleration in the demand for robotic goods-to-person (G2P) systems due to COVID-19 and the demand is estimated to quadruple in the next 2-3 years to help enforce social distancing. In future, every logistics player in the industry will have to embark upon this transformation journey where end-to-end process will be automated with AI and robotics. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

The 'Technology' Shots that Stores Need to Level Up Customer Experience

Stores have always been at the epicenter of retail disruption, be it the onslaught of digital or the recent pandemic. Despite ominous predictions, stores have risen like a phoenix to cater to shifting business landscapes and shopper behaviors. Retailers who view their stores through a new lens will realize endless possibilities because: Stores are seeing footfall of a different kind: While there is a dip in in-store footfall, there has been a surge in footfall of a different kind (buy online, pick up in store (BOPIS), curbside pickup). Store only footfall may be an irrelevant KPI, albeit temporary. Hence, the way we measure footfalls has to change. Comparable sales just got a new avatar: Stores are now seeing newer revenue streams like influencer streaming and live commerce. Tactile experiences have changed: The shopping experience has changed from see, touch, and feel to see,

digitally touch, and feel as retailers are embracing mobile usage in stores for contactless product discovery, checkout, and payments. Experiential retail has got bigger: New technologies like 7D and 9D are taking interactive and immersive experiences to the next level. Shoppers will visit smart stores to experience them. In-store shopping is now shoptainment: Visiting stores will be a welcome change for the lockdown-weary shoppers and a major source of entertainment. Customers will visit stores to find out what has changed, what do brands have to offer, and what others are buying —abundance, indulgence, and flaunting/pride of owning status symbols will continue to produce happy hormones. Ethical practices and sustainability are no longer nice-to-have: Shoppers, especially millennials, are deeply concerned about ethical sourcing and are seeking proof. Shopping has become borderless: With phygital retail powered by augmented reality/ virtual reality (AR/VR) and emerging technologies, shoppers can experience stores from where they are. They can connect with associates virtually to make buying decisions. Retail Stores are Experiencing Tomorrow Today There is less to debate about the endorphin rush that shopping at a physical store provides as compared to shopping at any other channel. However, the key now for the brick-and-mortar channel is to be a catalyst and supersede the convenience of online while keeping the excitement alive. Similar to a brilliant casting coup pulled off by Hollywood (think Cate Blanchet in Manifesto with over 13 roles or Tom Hanks in Cloud Atlas with over four roles), retail stores are now expected to portray multiple roles: Excite and Entertain: With social distancing norms driving the urge for physical interaction more than ever before, stores are expected to reinvigorate the excitement through innovative repurposing of store products and offerings and through shoptainment. Explore and Engage: A complete reimagination of product exploration and customer engagement would be key, given the increasing rise of enter-and-exit autonomous scan-and-go-stores. As customers increasingly look for online-like convenience and a non-intrusive shopping autonomy while at the store, product exploration needs to become more phygital driven by hygiene. Showrooming, once considered a taboo, is likely to create new opportunities for store associates to engage with customers better and drive more value. Enable and Exploit: Irrespective of channel preferences, stores are most likely to become the nucleus of the omnichannel proposition enabling curbside pickup, BOPIS, buy online, ship to store (BOSS) and micro-fulfillment or crowd sourced deliveries. So, what does all this mean for stores? Stores need to dynamically choose multiple avatars based on the context of customer interaction and the roles of store associates. What makes it more challenging is that all these avatars need to be portrayed simultaneously at the same time unlike movies where there is a liberty of retakes and post-production. This makes it imperative for stores to leverage the power of machines through artificial intelligence/machine learning (AI/ML) algorithms for driving phygital customer experiences, workforce management or intelligent in-store picking, automated micro-fulfillment or smart inventory management to manage demand from different channels or digital twins of stores. Thus, real-time, pre-emptive, cognitive smart stores are the fully vaccinated versions bringing in automation, intelligence, autonomous operations combined with hyper-personalization and unified commerce. Conclusion In recent times, several brick-and-mortar retailers were able to meet the rising digital demand by moving their store inventories and by quickly enabling contactless

fulfillment, while achieving inventory productivity and business goals. Many are keen to accelerate sales growth, improve gross margins, increase inventory productivity, optimize general and administrative (SG&A) expenses, improve working capital efficiencies, and lower cost of doing business (CODB). Algorithmic retail and the machine first paradigm can help move omnichannel retail evolve into Zen mode, transcending into purpose-centric shopping, ultimately freeing retailers from the slavery of channels. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Sameer Rane You have these already downloaded We have sent you a copy of the report to your email again. Data is obviously a critical asset for today's enterprises. However, this asset can be tantamount to value only when it provides useful insights. Also, data must be of prime quality for enterprises to derive meaningful and reliable insights from it. For maintaining data quality, it is also essential to provide good-quality input data to the right consumers, at the right time, and in an agile manner. However, huge data volumes and heterogeneous data formats could be a challenge here. To address these challenges, enterprises must use robust automation of data quality management processes and ensure their continuous evolution. Enterprises need to analyze the overall data quality management processes and identify opportunities to reduce manual activities and enhance the overall performance. Artificial intelligence (AI) and machine learning (ML) can play a vital role in implementing this. Hence, both data quality and AI/ML complement each other for improving the overall data quality management process. The Importance of Data Quality for AI/ML While enterprises are keen to leverage AL/ML to acquire meaningful insights from the enormous data they hold, the accuracy of the AI/ML models depends on the volume and quality of the data used as an input for training them. Inaccurate input data results in misleading outcomes delivered by the AI/ML models. This makes it imperative to ensure high data quality for AI/ML-based data processing by implementing the following steps: Auto-profiling of Data Prior to Analytics: Usually, data scientists examine the data before conducting a detailed analysis to study the general patterns within the data and identify any specific field values that are either very similar or identical. This may potentially influence the analysis process. A workable approach to remedy this problem is to auto-profile data across all possible data quality dimensions and analyze the statistical properties of data before correcting it. Data Treatment: Data profiling results can guide data scientists to decide whether certain data anomalies must be treated (using value replacement, enrichment, standardization and such), or left as-is. Even data fields with valid values may require normalization or transformation so that the resultant data can be fed into the AI/ML model. Thus, it is evident that the scope of data quality goes much beyond the traditional aspects of data cleaning and correction. Master Data Analysis: For scenarios wherein data analysis must be performed on master data, data deduplication needs to be performed. The Role of AI/ML in Data Quality Business users and data scientists require huge volumes of on-demand, quality data for analyzing and building data models. They prefer to invest their time in analyzing data rather than improving its quality and preparing it for analysis. Hence, enterprises need to focus on automating data quality operations and repetitive tasks to reduce manual interventions. To enhance the level of automation, enterprises must identify the areas of data quality management wherein AL/ML models can contribute. Some scenarios include: AI/ML can be used to classify critical data elements and help identify relevant data elements in unstructured data feeds, such as social media formats, before performing data quality operations on target data elements. Such a classification can

help in product categorization and hierarchy management thereby improving the product data quality. Based on the diagnosis of data, AI/ML can send notifications for relevant data elements proactively and recommend rules for data profiling, data cleansing, standardization, and enrichment. Business users can validate and include these rules for data quality processing. This reduces effort in manual configuration of rules and helps to enhance the existing rule set. AI/ML can also effectively recommend the best-suited business data elements and relevant criteria for data deduplication. Based on earlier instances, AI/ML models can learn the typical manual override tasks performed by data stewards, such as data correction, and merge and split operation, and perform relevant corrections from subsequent iterations. AI/ML can be used for elevating multilingual data processing capabilities of a data quality management software. For instance, to process a social media comment in a language that the software does not recognize, AI/ML models can be trained and used to translate the content into one of the supported languages. Data Quality and AI/ML - The Symbiosis While high-quality data is essential for reliable AI/ML-based data analytics, such analytical models can, in turn, be leveraged to effectively automate data quality operations. Hence, data quality management and AI/ML mutually benefit each other, and their collaborative usage can deliver higher business value as against what they would have delivered individually. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Data Adoption and Sanitization Using Machine Learning

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Detect anomalies – A small human error can drastically affect the utility and the quality of data. A machine learning-enabled system can remove imprecisions and repetitions of tuples. Data quality can also be improved through the implementation of machine learning-based anomaly. Third-party data inclusion – Third-party organizations (for example customers, vendors) and governmental units can significantly enhance the overall quality of data for the decision systems by presenting better and more complete data which can contribute to precise decision-making. Machine learning can make suggestions on what to fetch from a particular set of data and build connections within the data. It is imperative for companies to have the right algorithms and queries to operate on their big data. There are many algorithms available to address the above points out of which we found the below two as the most appropriate ones: Random forest – It is a supervised and flexible machine learning algorithm which creates a forest of programing logic and makes it random. It utilizes randomness to establish several decision trees in an uncorrelated forest and combines them to achieve a more stable and accurate prediction by outputting the class - that is the mode of the classes or mean prediction of individual trees. Support vector machine (SVM) algorithm – It is a supervised machine learning algorithm that can be used for both classification and regression. The primary goal of SVM is to classify unseen data. In organizations, there will be opportunities for using resources more efficiently, predict data quality issues, and prescribe solutions to ultimately improve data management systems and processes. The biggest strength of machine learning is that it considerably expedites data cleaning activities, and what that would have typically takes weeks or months can now be completed within hours or days. Also, volume, which was a disadvantage with manual data operations, is actually an advantage in machine learning programs, as they keep improving when inputted with more and more data volume. Using machine learning, the system can self-teach on the data points required and the ones that can be eliminated. Such an analysis can help revamp the process and, eventually, make it simpler. Conclusion Most businesses look for faster analytics with high-quality insights to deliver real-time benefits based on quick decisions. They consider this as one of the top priorities and the means of competitive advantage. To enable this, there is an opportunity for organizations to finetune and enhance current data quality approach using ML techniques. Many leading data quality solution providers have ventured out into the ML territory in anticipation of increasing the effectiveness of their solutions. Thus, it has the potential of becoming a game changer for the businesses in pursuit of improved data quality. Machine learning can complement the contemporary rule-based solutions, and synergistically and gradually lead to process evolution around data quality. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

Reimagining Customer Experience in Agribusiness the Neural Way

What is the first thing you read on product labels before buying any packaged food item—the source of food, the price, or the nutritional information? Our guess is the nutritional information. According to the Charleston Orwig study on food labeling and consumer behavior, 71% of consumers expect nutritional information to be easy to find. Yet, only 7% of all manufacturers provide essential information on their labels. With price, nutritional facts, and ingredients becoming crucial in the product buying decision, agribusiness organizations must meet the end-user demands of providing comprehensive information on food ingredients and nutritional values for products in the expanding packaged foods segment. Providing nutritional information on food packaging labels is a way for companies to communicate the authenticity of their products to their customers. Such information also apprises the end consumer of the source of the product. To offer this information, food companies are now familiarizing themselves with farming operations and are adopting technologies such as blockchain to enhance customer

experience (CX). To illustrate, Dutch supermarket major Albert Heijin has deployed blockchain in its orange juice product to ensure it can be traced across the supply chain. According to FoodNavigator, a news publication for the food industry, consumers can scan QR codes on orange juice packs at Albert Heijin and see the entire journey the orange juice has taken from farm to supermarket. With such visibility into the supply chain, agribusiness companies can negotiate lucrative deals for the farming community while also creating innovative food products with consumer product goods (CPG) companies, thus enabling CX transformation. In addition, as consumers expect products to be available

through the year, on demand, agribusiness companies need to expand their supply network to improve sourcing, distribution, and enhance end-product variety. At the same time, to meet evolving consumer demands on health, safety, and traceability, these firms must also adhere to stringent regulatory requirements on packaging and labeling. Building Resilience with a Neural CX Network Agribusinesses can better engage with their customers and create exponential business value by adopting neural traits into their operations and business processes. These traits are derived from the Neural ManufacturingTM framework, where the value chains, including those in agribusinesses, are connected, cognitive, and collaborative. To enable neural traits, agribusinesses need to understand where customers want to engage with them, what needs must be fulfilled, and how they want to engage with a brand. By creating neural CX networks, organizations can build systems that provide sufficient early warnings to sense shifts in demand, address logistical challenges, and provide a personalized CX. By deriving actionable insights through improved market signals, an organization can handle any external shocks, drive customer retention and support, ensure greater customer responsiveness, and improve brand engagement. An example of how agribusinesses can create neural experience networks for their customers is through personalized experiences. A leading agri input company used augmented and virtual reality to build a digital portal for its customers. This boosted brand experience across the firm's branches in 58 countries and improved new brand launches by 66%. Content production increased by 90%, thereby improving customer engagement across product lines. In another case, an agri-retailer saw its customer orders increase by 300% during the agricultural peak season thanks to its adoption of adaptive, intelligent, and cognitive operations. This change made the firm's business processes resilient and led to zero outages, leading to a 20% rise in branch revenue and improved customer satisfaction. Neural Networks for Innovative Customer Engagement In today's volatile, uncertain, complex, and ambiguous (VUCA) world, rising market complexities, increasing external ecosystem factors, and inconsistencies in supply and demand make it difficult for the existing technology landscape to provide real-time actionable insights. Most organizations have invested heavily in enterprise resource planning (ERP), customer relationship management (CRM), and other IT systems. But they still struggle to be proactive in addressing customer engagement issues and mitigating risks. Bringing customer and market intelligence and cognition into sales and service processes and systems are crucial to having a proactive and predictive business process. Technology is the lynchpin in such cases where machine learning (ML) and artificial intelligence (AI) can lend neural traits to marketing, sales, and the service

business function. Neural networks can provide organizations with the right tools to predict potential problems and, in some cases, take preventive steps. A deep learning neural network can be effective in many areas using different predictive algorithms. An infographic explaining the 3A (assess, analyze, advice) framework for AI maturity in retail business processes. It is a knowledge-based recommendation engine that helps retailers improve AI maturity and reap the benefits of digital transformation. The framework consists of steps that range from assessing the current state of AI maturity to full-blown AI democratization. The first step is to discover any organizational issues that may be hindering data analytics, such as manual processes or high technology debt. Next, analytics are examined to reveal any silos in data or on-premise structured data. Consolidating data warehouses and implementing predictive analytics can help to localize analytics. The second step is to organize, which involves improving organizational awareness, investing in value proofing Al models, and reducing tech debt. The third step is to enable organizational alignment and focus on building Al products. Laying the AI foundation requires the enablement of cloud or on-premise big data. Data harmonization and minimal viable product on Al use cases are also necessary. The next step is to disrupt the current business strategy with Al-driven decisions, Al governance, and an established Al office. With this 3A framework, retailers can upgrade their AI maturity and fully digitalize their knowledge management framework. A Design Thinking Approach to Agribusinesses As agribusiness models become increasingly sensitive to changing consumer demand, industry players need to analyze the implications of systemic disruptions on operational activities and prepare accordingly. Design thinking can address end-user requirements by understanding what they need from a product or service. Design thinking elements also prioritize digital technologies to make CX processes truly scalable and immune from disruptions. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Six Ancillary yet Significant Features of Effective Data Management Software

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demands, it is important to consider the key supporting features that can lend a competitive edge to the software. While many claims offer the high-end primary features, software that offer pragmatic, user-centric ones can often prove to be the game changers. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Cloud Is Not the Limit – Being at the Cutting Edge of Edge Computing!

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Everything is constantly changing, and so are successful organizations and their operations to keep abreast of the changing technology and fulfill business needs in the smartest way possible. One of the most recent innovations in the technology space is cloud computing. Cloud computing enables saving information on shared servers instead of local drives. However, with the constantly growing need for faster connections and speedier response times, the connected devices equipped with the advanced predictive model call for a more sophisticated technology that can cope up with the next-generation IoT. For example, think of a sudden breakdown in a boiler operation, which happens to be at the core of an industrial plant. The impact is not only limited to itself but also to all downstream systems, and the disruption can be big enough to bring all operations to a sudden halt. Such breakdowns can also directly affect the end consumers as well. In modern maintenance approaches, edge computing-based predictive maintenance is gaining ground for increasing the reliability of the equipment by sensing the problems even before they arise and even faster than cloud computing. Edge intelligence is based on fog computing where the processing of data and related analysis are carried out closer to the edge where the industrial devices and sensors are actually located, instead of sending the data to a remotely located, centralized cloud. Comparison of the baseline data to the real-time data takes place in the edge itself, and alerts are triggered if the real-time performance falls beyond the baseline data range. There are four types of edge computing, namely: 1. Devices - The devices that perform the analysis and real-time inferencing without the involvement of the edge server or the enterprise hybrid multi-cloud 2. Edge server - It consists of one or more tiny servers also known as a nano datacenter 3. Edge network - It is a small data center consisting of everything from a few to many server racks. 4. Enterprise hybrid multi-cloud - It offers the classic enterprise-level model storage and management, device management, and especially, enterprise-level analytics and dashboards. Uploading a huge amount of data on remote data centers can be avoided by using edge intelligence, as many maintenance issues can be resolved on the site using analytics and processing applications residing on the edge. Many industries, including the manufacturing industry, benefit from it. Other industries include: Edge computing is continuously gaining focus. For example, Amazon, Microsoft, and Alphabet– all three of these tech giants' cloud offerings -- Amazon Web Services, Microsoft Azure, and Google Cloud -- support edge computing in both hardware and software. The edge computing market is seeing exponential growth. In fact, IDC predicts that spending on edge computing will reach $250 billion by 2024. Conclusion Edge computing, thus, processes system data within the network, and only relevant data or information are conveniently bundled and sent to cloud, thereby reducing latency issues. This brings a subset of the computation and data storage closer to the location where it is needed to improve response times and save bandwidths. Some of the main benefits of edge computing over pure cloud computing include secured data management, lower connectivity costs and better security practices, reliable, uninterrupted connections, and quicker analysis and decision-making. Edge will indeed complement cloud computing in the future to evolve into a hybrid approach of computing. The Role of AI in HRMS Industry Cybersecurity: The new

frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Impact of IFRS 17 Compliance on Insurance: Key Performance Indicators

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Applicable for various types of insurance contracts such as life, non-life, reinsurance, and others with direct participation features, it rebuilt performance measurement from the ground across many areas. Being a principles-based standard, it lays down the principles upon which insurance contracts are to be recognized, grouped, measured, and disclosed in the financial statements. With the compliance deadline just over 18 months away, a huge demand has risen for appropriate changes to be made to the traditional KPIs by incorporating IFRS-17-specific dimensions into them. Understanding the implications and explaining the new KPIs to analysts, investors, and the business are critical in providing an effective basis for decision-making and ensuring that the market valuation reflects the genuine performance and potential of said business. An analysis of the currently reported KPIs across the top 10 insurance entities based on publicly available financial statements gives an indication of the most critical disclosed KPIs in the industry. Post IFRS 17 compliance, these KPIs are set to undergo changes to keep pace with the new measurement yardsticks for measuring the financial performance of an insurance entity as well as its comparison with other insurance companies. Broadly, the impact of IFRS 17 on KPIs can be categorized as outlined below: Recalibration of current KPIs A fair amount of recalibration has to be carried out of current KPIs like acquisition ratio, operating expense ratio, and loss ratio to meet IFRS 17 requirements. The acquisition cost ratio will include only directly attributable acquisition costs and not indirect costs. The operating expense ratio will also undergo a change as the total revenue will now be segregated into "insurance service result" and "insurance finance result." The premium received and claims paid will not be directly reflected in the "income statement"; instead will be routed through the insurance contract liability. This will lead to the modification of the "combine ratio or loss ratio." Least impacted KPIs Free cash flows, return on equity/investments, and earning per share constitute some of the least impacted KPIs. While free cashflows will continue to be calculated based on the current approach, the definition of return on equity will also remain the same but amounts that constitute return and equity would be different. The existing measurement approach for earnings per share/dividend payout would continue. However, amounts would change significantly vis-à-vis the current reported values. Redundant KPIs Some metrics will continue to be headline KPIs, albeit with the information needed to explain any changes. However, others could be less relevant such as "gross written premium," "premium received," etc. Considering that periodic allocations from the contractual service margin would get reflected under insurance revenue, the "premium received" would no longer appear in the income statement as a source of revenue. Conclusion Some of the critical KPIs in the insurance industry have been explored in general. But, an in-depth evaluation needs to be done on a case-to-case basis by each entity to understand the extent of change required in reporting their KPIs. In conforming to the changing disclosure dynamics under IFRS 17, the various management dashboards depicting KPIs must be revisited to reflect the underlying business metrics accurately. This will ensure the requisite level of data and information granularity to support a meaningful drill-down and analysis of the critical KPIs is maintained. Centralizing accurate data storage on the cloud also allows for automation of the whole reporting ecosystem through "senior management dashboards" and "self-service MIS." To conclude, key business metrics will undergo a

significant change once IFRS 17 gets implemented. Traditional KPIs and new KPIs need to be suitably aligned and integrated to understand and compare the financial statements through the same organization and the industry in general. Nevertheless, traditional KPIs and new KPIs would continue to be used parallelly for three to five years to fully understand the impact of IFRS 17 on insurance entities. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Extraction Solution: A swiss army knife for solving extraction challenges

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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. Devang Patel Head CTO TCS Incubation You have these already downloaded We have sent you a copy of the report to your email again. In my previous blog, we saw the various formats in which enterprises receive documents for information extraction and the role of foundational technology in enabling it. We also observed the challenges faced, such as noise, quality, region of interest detection, document classification and many more. Now, I will explain how an extraction solution built on top of the foundational technologies can address these challenges. Below are some of the solution elements that solve specific extraction problems: Noise elements and quality issues: Image correction techniques are applied to reduce and correct the noise present in the document. Geometrical affine transformations can help correct tilt and orientation issues. Gaussian and Laplacian filters can be applied to remove noise from the document image. Background logos, textures and patterns can also be removed using thresholding techniques. Region of interest (ROI) detection: Identifying and narrowing down on the ROI helps in focusing on key areas of interest and cutting out background noise present in the document. This is achieved using either image analytics or deep learning-based models that detect word blocks by drawing boundaries around words and later extract information from these word blocks. Document classification: Documents are classified using deep learning-based models trained for image classification, combined with regular expression-based classification. This helps in identifying the document type and applying focused secondary processing to improve extraction accuracy. Handling variable layouts: Understanding of geometry, placement and associated content of different element blocks present in the document helps in associating values with labels or positioning elements with each other. This helps extract information from documents, which are usually varying in formats and layouts. Inference-making: Language models offered by natural language processing (NLP) software can be trained to recognize context-specific named entities using transfer learning. Part of the speech capabilities of NLP libraries can help dissect and associate multiple sentences and arrive at an inference from the clauses present in legal documents. Hand-written text and multiple languages: Separating printed text from handwritten text helps in processing each type of information separately and applying secondary processing specific to each type, resulting in better extraction accuracy. Multilingual support from underlying foundational optical character recognition (OCR) and NLP technology is important to handle documents in multiple languages. Processing: A combination of the above are applied in a processing pipeline to solve a specific extraction problem. Files can be fetched from existing document repositories using adapters that are compatible. Extracted information can finally be exported in the form of Excel or JSON files or exposed through APIs for integration with enterprise applications. Business-friendly workbench: A business-friendly workbench is key to technology adoption by business users. It can allow users to train extraction models, submit files, execute extraction jobs and verify and correct auto-extracted information. Providing confidence scores for every extracted value can help users decide on the amount of attention required in verification. Closed loop learning and re-training the extraction model based on user corrections is key in

improving accuracy of extraction. Looking to The Future Availability of better computing power and more training data have made the use of artificial intelligence and deep learning increasingly prominent in solving extraction problems. GPUs and technology advancements now enable faster training and execution and address multiple unsolved problems with improved accuracy. Computer Vision: Instead of using traditional image-processing algorithms, we can now plug in deep learning models within computer vision libraries to clean noise and do many other image enhancements with better precision. Deep learning models used for detecting logos, pictures and signatures in documents are improved by object detection. Optical Character Recognition: Newer versions of OCR software come with integrated long short-term memory (LSTM) deep learning models that help improve OCR accuracy by learning the sequence of characters or words. They also understand more languages and facilitate their extraction seamlessly. The OCR model can also be trained with data specific to an enterprise context to help further improve accuracy. Natural Language Processing: Advancements in NLP – such as transformer architectures with the use self-attention mechanism – significantly improve many NLP capabilities such as translation, search engines, sentiment analysis and more. The recently launched BERT model is especially useful in arriving at inferences from legal clauses. Intelligent Character Recognition: Traditionally, Hidden Markov Model-based techniques have been used for handwritten character recognition. Typical processing for hand-written data extraction involves segmentation at line, word or character levels; pre-processing for de-slanting, contrast and image improvements; character recognition using deep learning models; and then post-processing to predict the right character or word or group of words. Use of Generative Adversarial Networks (GANs): Deep learning-based GANs can be trained to remove noise elements from documents, or they can be used to generate synthetic data that can be further used for training extraction models. Making the Right Choice: We have made a successful transition from manual to automated data extraction. Faster cycle time and improved productivity deliver a positive return on technology investments. Enterprises should choose the right automated extraction solution that can offer coverage across a wide variety of documents and business functions with a good degree of extraction and accuracy. We are certainly looking at an exciting journey ahead in the world of information extraction. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

On the Move: Freight Rail Evolution and its Future

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react to swings in volume, thereby enhancing operational efficiency and lowering transportation costs. Positive train control (PTC) has led to dramatic improvements in safety. In the US, it was successfully implemented in 2020, and the new set of data opens opportunities for automation and increased efficiency. For instance, in train planning, it is now possible to schedule moving block instead of fixed block. Geographic Information System (GIS) data will enable real-time train location details, thereby reducing the need for train siding. Autonomous rail cars provide unmanned remote-controlled track inspection to detect and access the severity of issues and keep the assets safe and operable. Enhancing BCP planning provides better response to crises through further enablement of cloud for managing data and systems, providing flexibility for secondary dispatch and operations centers. Innovation in operations and safety testing and inspection activities makes use of augmented reality and virtual reality (AR/VR), drones, ultrasound and smart sensors machine learning for testing and inspection activities. The future is intermodal The rise of global commerce presents an opportunity for railroads to invest in growing intermodal by increasing the efficiency of the terminals using automation, such as hi-tech cranes, automated gates and terminal operations. Visibility and sustainability have become standard expectation as opposed to an exception in logistics operations. Providing end-to-end visibility, especially in the multimodal logistics supply chain, translates to better customer experience, and improved network planning and operational efficiency. Likewise, improving fuel efficiency is an ongoing goal. Sustaining economic growth while significantly slashing energy consumption and environmental impact requires a transition to efficient, zero-emission vehicle technologies, renewable fuels, and alternate options such as hydrogen fueled or battery/electric operated locomotives. The use of technology can help companies in the following ways: Automated and intelligent systems powered by IOT, AI and Machine Vision Automated and intelligent operations would eliminate the need for manual control, thereby reducing errors, improving safety, performance, and asset maintenance. Smart sensors, microprocessors, and adaptive control systems will enable vehicles to monitor their own performance, environment, and operators to avoid mishaps. Intrusion detection technologies will continuously monitor information systems and networks, warning operators and users of potential system problems or cyber-attacks before they manifest in system degradation. Intelligent vehicles will be able to monitor and adapt to their environment, ensuring operator safety and comfort. Automated vehicle operations and decision-support tools will enable vehicle-centric route optimization, increasing system-level safety and efficiency. High-performance computing Development of large-scale models and simulations of the transportation system will help assess system performance, conduct trade-off studies, and define potential transition paths to an integrated system before developing and fielding operational systems. Distributed computing techniques will enable system-level and in-vehicle real-time trip planning, tracking, and decision support systems to facilitate best-value decisions. High-confidence systems and high-bandwidth communications will ensure connectivity among all system elements, regardless of the environment or security threats. Robotics and simulation Robotics will reduce reliance on humans to maintain assets such as track, locomotives, yard, cars, bridges, or tunnels. Advanced instructional technology, such as computer-based instruction and

simulation, will provide operators and users with the skills they need to operate safely in all situations. High-fidelity collaborative and engineering environments with human interfaces will enable the industry to simulate an entire product life cycle, sizably cutting development costs and schedules. To meet the increased demand for reliable freight transportation, the railroad industry must become more resilient and adopt infrastructure and equipment resistant to extreme weather and natural disasters. Advanced planning and forecasting, high-tech equipment and systems, and simulations are critical to review plans, implement changes, and reroute traffic as needed. It is also essential to ensure that resources and procedures are in place to respond to each unique condition and challenge. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ========================

Identifying the Right Approach and Solution for Successful Data Migration

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create test data in a test database, and subject it to various test scenarios. This reduces the risk of running into issues later when it will be greatly difficult to rectify them. An Ideal Data Migration Solution Choosing an effective, ready-to-use solution for organizational data migration is vital since building a tool is complex and time-consuming. The chosen solution should address all major data migration challenges. A solution with the following key capabilities is an ideal choice: Adequate Connectors – The data migration solution should allow the source and target databases to be connected through a wide range of heterogeneous sources, file types and extract, transform, load (ETL) instances. Easy Data Mapping – An intuitive solution with a graphical user interface (GUI) should enable easy visualization of the migration process. A code-free, drag-and-drop GUI for mapping the source and target metadata and transforming rules can reduce or eliminate any tedious efforts during this critical process. Automated Attribute Mapping - Automated mapping of the source and target attributes based on the attribute names reduces 50-60% of the total effort and risks associated with the manual implementation process. Portability: The data migration process facilitated by the solution should be portable and functional in all compatible environments regardless of where it is being defined. This is convenient for users working on production and on-going migrations. Data Integrity and Data Atomicity - The solution should factor in the orchestration of related tables and migrate data to the target system accordingly so that the target records of tables remain in-sync. Data Reconciliation Report - Detailed performance statistics of the volume of data migrated, its accuracy, and completeness offer users with deep insights into the efficiency of the migration process. The solution should be capable of providing such reports and even fixing flawed records. Along with an ideal data migration solution, skilled experts are also required to support the data migration process, which is unique to the organizational requirements. For more information on the ideal data migration solution for your organization, contact us at mastercraft.sales@tcs.com. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

On Edge of a Future that Offers Value-Based Real-Time Care Delivery

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owned by enterprises and governments utilized edge computing for data collection and processing in 2020. The future of healthcare delivery through edge computing promises better and immediate care, with cost savings to both patients and providers. However, there are some challenges that the healthcare continuum needs to address before full-fledged adoption. Firstly, the cost to build and buy the infrastructure requires high initial investments. In particular, for remote areas where basic connectivity is still an issue, deployment and coverage of edge can be more challenging. Further, security issues in green storage technologies may allow attackers to add unauthorized software or hardware to edge nodes and inject malicious inputs into edge servers. Healthcare regulations can also be a limitation as edge devices and the corresponding software should follow the geography-specific compliance – be it HIPAA for US or GDPR for Europe – failing which, healthcare organizations may face heavy penalties. In time, we believe, a well-planned execution that adheres to the security requirements and regulatory mandates can overshadow the challenges and demonstrate high RoI. The future of healthcare looks bright as the real meaning of virtual, value-based, and on-demand care can be truly realized. Edge computing will act as a crucial enabler in utilizing technologies like IoT and AR/VR to their fullest. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Smart factory, smart opportunities: How 5G is driving new models and markets for telcos

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monitor their own performance and, in the event of problems, self-diagnose and arrange maintenance. This reduces the chances of costly unplanned downtime, which can bring production to a halt. In cases where further intervention is needed, 5G will also support the use of AI-based, high-quality visual inspection. Video and images from production lines will be analyzed and problems rapidly identified. This approach can be used to set and reinforce quality thresholds as part of a zero-defect operations model. The ability for machines to communicate with one another, and just as importantly with cloud-based operations platforms, puts a great demand on the data network. Smart devices, part of the internet of things, connections to the cloud and so on—all made possible by 5G—will produce such volumes of data that would have been hard to comprehend just a few years ago. Existing technology—such as fiber-enabled Wi-Fi—alone is unlikely to be able to offer the flexibility that 5G devices will provide, allowing machines to be relocated or even fully mobile while remaining connected. Connected organizations A smart factory will not exist as an island, either. It will be connected to all the other operations of the business—all of which will be feeding data, in real time, into a digital operations core. That may include other manufacturing facilities in different parts of the world and will certainly include logistics functions, sales operations, business intelligence platforms and the supply chain. This will open the door to enhanced research and development, improved production planning, more efficient consumption of materials, optimized inventory stock levels, and better customer engagement based on mass personalization. These are all possibilities that can only be realized through the effective deployment of next-generation digital technologies, with 5G acting as the glue that binds it all together, adding vital end-to-end security to accelerate the convergence of IT and operations functionality. Collaborative futures Telco businesses that work collaboratively with a wider ecosystem to develop a complete end-to-end solution for various vertical market scenarios could be the big winners in the 5G economy. By 2034, 5G may have generated an additional $565 billion in global GDP, according to figures from the GSMA. And in the UK alone, almost two-thirds of manufacturing companies plan to implement 5G within two years of availability, making the potential benefits of collaboration clear. We are only scratching the surface of the abundance of opportunities opened up by 5G. It is more than just technological infrastructure, it is a portal that can leapfrog us into the future of business and industry—and it will require a new mindset to leverage its promise. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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rates of any social platform and over 1 billion videos viewed per day, platforms like TikTok radiate potential for companies looking to expand their social media presence. According to Influencer Marketing Hub, the social media app has seen an 800% growth in the US since its relaunch in 2018, with the average user spending 52 minutes every day browsing content. Stronger Together Video-sharing platforms are highly conducive to producing and building communities of like- minded people. From a healthcare standpoint, these communities provide a safe space for interaction between patients, caregivers, and supporters. Communities centered around rare diseases, for example, have grown exponentially in the past year. Some content creators have garnered millions of views sharing personal stories or educating people about their affliction. For instance, cystic fibrosis is one of the larger rare disease communities on the video sharing platform. The top video tagged #cysticfibrosis has received 1.5 million views, while the top ten videos with the same tag have over 3 million views combined. For a rare disease that affects only about   30,000 people in the US and about 70,000 people worldwide, the number of views is staggering. Additionally, the extent of the engagement is evident in the comment sections of these videos with people asking questions or sharing their own experiences. The bite-size nature of the videos also allows content creators to quickly respond and expand the conversation. These extensive engagements could be a great potential opportunity for pharma and medical device makers to learn about their patients on a deeper, more personal level. In addition, the content generated on these platforms can help with their messaging and provide an avenue for mutual learning when implementing social listening strategies. The companies can learn from patients, and potentially interact with them on the platforms as well and help offer qualified advice from subject matter experts. Creating a Connection Video-sharing platforms allow a deeper level of engagement between content creators and their followers. For example, a user generated over 1 million views with a series of videos featuring their new portable nebulizer for cystic fibrosis. The posts went on to spark a conversation within the community in the comment section. While the featured device maker did not interact with the commenters or reach out to the user, their nebulizer gained an exceptional amount of exposure on the platform. Additionally, these content creators, with their personal experiences dealing with the ailment and the medical services, are on solid ground to not only initiate a conversation around the diseases but also ensure availability of accurate and actionable information in the public domain. Patients are already creating viral relevant content, so it would make sense to partner with the companies that produce the treatments or devices they already use. Living Up to Your Full Potential Video-sharing platforms like TikTok can be a smart way for pharma and medical device makers to enter social media spaces in a meaningful way. Patient communities are thriving on social media platforms. There is potential for healthcare companies to mingle with patients and caregivers in established communities and demonstrate their roles with a genuine presence. These platforms can provide companies with a deeper level of understanding and valuable insights into a patient's healthcare journey. They are already helping demonstrate what it means to be living with a rare medical condition like cystic fibrosis. These engagements can potentially help gain insights into areas where the pharma and medical device companies can add value to the patients' lives beyond treatments and

products. Additionally, a social listening strategy can lead to more patient-centric care and disease-state education. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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them into uncertainty and chaos. The tourism and hospitality sectors have been one of the most impacted industries due to travel restrictions worldwide. In a January report, the World Tourism Organization (UNWTO) pointed out that international tourist arrivals have declined by 74%, causing a loss of $910 billion to $1.2 trillion in export revenues from tourism, besides putting 100 to 120 million jobs at risk. To attract customers and instill the idea of safety in their minds, companies have been resorting to technological solutions and strategies that were deemed irrelevant in the pre-COVID world (see Figure 1). An infographic that lists the internal and external factors that would appeal the most to hospitality customers. Enhanced safety and wellness protocols that promote sustainability should be accorded high priority among internal factors, while nurturing alliances and partnerships for a robust ecosystem should top the list of external factors. Internal Factors 1. Enhanced Safety Protocols and Wellness Programs for Sustainability: Businesses must implement better health and sanity protocols not only for the safety of customers but also for their employees. Organizations need to maintain adequate personal protective equipment and cleaning supplies on hand, including masks, gloves, and disinfectants. Businesses should also take steps to amplify these procedures to their customers through various channels like customer websites or via mobility apps, push notifications, social media campaigns and advertising. 2. Making Smarter Decisions: Travel is most likely to increase followed by an increase in occupancy rate, which will translate into better revenue per available room (RevPAR). As additional cost is involved in acquiring customers. While short-term cost optimization strategies such as layoffs may offer some cushion, organizations should emphasize on long-term strategies such as automation, digitization. pricing and competitor strategies, which will be a key determining factor in attracting customers. 3. Providing Seamless Customer Experience: In the current scenario, customers place high emphasis on social distancing, safety protocols, cleanliness, hygiene and sanitation while choosing places to stay. Sometimes, implementation of these protocols can hamper the seamless experience of customers; for example, a long queue for temperature checks can be a put off for many people. In such situations, the use of thermal cameras can replace individual scanning to avoid long queues. Digitalization can go a long way in providing a seamless customer experience; for example, a mobile platform where the hotel's offerings can be accessed in a single place can be a customer-friendly initiative. 4. Leadership's Strategic Focus towards Transformation: CXOs in the industry are focusing on winning the customer's trust again, repurposing assets, defining new policies and monitoring complete supply chains in the post-pandemic era. The CEOs of the industry now have a higher interest towards digitization, use of drones and robots, artificial intelligence (AI), digital communication, data analytics and contactless deliveries. CIOs are more focused towards use of AI and data science to automate customer care processes, and drive customer loyalty. 5. Go-to-market Strategy: As the economy recovers, organizations should rethink their marketing strategies as against minimizing budgets like they did early last year. The important consideration now for customers while choosing a hotel or destination is safety, and organizations need to amplify it and take effort to project it to its customers. An area that has grown during the pandemic is influencer marketing, where organizations hire influencers to project how safe their environment is for customers.

External Factors 1. Nurturing Alliances and Partnerships: Businesses need to form alliances and partnerships with other organizations upstream and downstream in their ecosystem. Looking ahead towards recovery, partnership with upstream providers like aviation companies and downstream ones like tourism agents and cab agencies can provide customers with an integrated service with better safety at every stage of their travel experience. Another example is partnership between hotels and hygiene product and healthcare companies to draft better health and safety protocols. 2. Government Regulations and Consortiums: Businesses must abide by strict rules and comply with protocols and guidelines published by the regional and central governments. Non-compliance can lead to heavy fines and create a bad image among customers. 3. Industry Landscape Competition/Consumer Market: With low demand, competition becomes cutthroat. In order to survive, organizations must strive to be different from one another. To do so, they can implement unique innovative solutions and strategies apart from ramping up their marketing and digital activities. To achieve this uniqueness, organizations must study their customers and align themselves with market and consumer demands to stay competitive. One such example is a hotel converting its unused rooms into restaurants, thereby allowing social distancing between its customers. Many organizations are moving towards more technological options such as mobile check-in and robots deployment to reduce human contact as well as using virtual reality to provide customers a glimpse of their premises before checking in. 4. Technology Drivers: COVID-19 has accelerated the adoption of new technologies and applications in hotel operations. The most basic feature that even small-scale companies can adopt is the use of mobiles for various activities like checking in or out, digital menus, in-app ordering, room keys and so on. Customer-service functions through AI-powered chat bots, autonomous robots for housekeeping and sterilizing high contact areas; use of computer vision and sensors to detect whether people are adhering to basic rules like wearing masks and maintaining social distance can go a long way in protecting guests and employees. Amidst the current financial strain on businesses and the evolving demand landscape, organizations will need help from governments to transform current impediments into promising opportunities for revival, including facilitating compliance with travel restrictions, supporting with liquidity and monetary measures, securing laborers, and advancing the travel industry. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Evolution of the Purpose-driven Ecosystem: Reimagining Business in the 5G Era

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high-speed networks, re-engineering their offerings in a customer-first approach to leverage the advantages of zero-touch digital customer engagement in the 5G era. Here are two use cases that demonstrate the progress of purpose-driven ecosystems with 5G and the dynamics between end-user demand and robust networks. Drones have emerged as a valuable tool for remote monitoring, across instances including evaluation of oil and gas rigs, bridges, ships, roads, airport runways, and so on. These technology-enabled safer alternatives can access remote locations that are out-of-bound for humans, and deliver a vast range of visual data for processing and analysis. Thanks to robust and secure cloud-based operations, 5G, edge and near-edge computation, analysis and decision-making are now delivered in formats and on platforms that are compatible with the needs of civil engineers. Advanced healthcare and awareness, combined with cutting-edge technology and seamless connectivity hold promise of longer, healthier lives and better care for aging populations around the world. However, the coming together of new-age technology and elder-care services requires considerable planning and expertise in order to deliver the desired value. All interfaces, devices, and dashboards should be accessible at all times and simple enough for patients, residents, and their families. Connections with outside agencies, such as a doctor's office, hospital, or social care unit need to be factored in too. Thanks to the evolution of purpose-driven ecosystems in the 5G era, monitoring someone's well-being remotely at the intersection of all these needs is now a tangible reality. The need for high-quality customer engagement is catalyzing intuitive, disruptive innovations, and redefining the business landscape across sectors. 5G wireless technology is also set to transform and enable a plethora of business opportunities including smart logistics, urban digital surveillance, smart factories, immersive in-stadium experiences, experience-rich retail stores, and collaborative business ecosystems built to delight customers and generate revenue. With uninterrupted, uncompromised secure online services becoming the lifelines of enterprises, telcos should look at repositioning themselves around resilience, security, and reliability, to take their place at the center of this new technology-enabled universe. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 Enterprises Need Explainable AI for Transparent Decision-Making

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have a solution for all ills, but in this blog, we explore strategies companies can employ to enable traceability, predictability, and accountability of decisions. A General Approach - Start with the End in Mind The first step in approaching the challenge of explainable AI is for enterprises to tackle potential risk areas by identifying the positive and negative consequences of outcomes, and how negative outcomes will be redressed. For example, negative outcomes could be gender or ethnic bias. Further, when looking at outcomes and consequences, firms will face the next level of challenges—How can each outcome be tested? Is each potential outcome a fair result? How can firms collect data (with due consent) to generate these outcomes? Simply highlighting the negative consequences of an outcome creates a different thought process on managing results. Consider the example of recruitment prediction—a model can be developed to receive a resume and predict whether a candidate is suitable or not. The outcome could be a simple binary choice of yes or no. Establishing clear criteria at the conceptualization stage drives two behaviors. First, the scope of a project now encompasses not just building the AI models and producing them, but also includes validation and verification criteria for both development and production. Second, it establishes traceability of goals and decisions, thereby providing the first level of accountability. Testing and Monitoring Outcomes for Enhanced Transparency When the scope of a project is defined not just as AI/ML model development, but as one where outcomes are operationally validated and verified, enterprises can develop the project along three highly interrelated streams: Stream 1: Proceed with model development through the usual activities of clustering, classification, training, and testing. There is specific focus on removing features and their proxies that lead to biased outcomes. Stream 2: Develop mechanisms to demonstrate the explainability of the model. The many methods for this activity range from decision trees to using model-agnostic techniques such as LIME and Shapely values. Based on the problem and the advantages and disadvantages of each model, a single or a combination of models can be used. Stream 3: Establish and test the outcomes and methods which will monitor AI models. As mentioned above, when defining the problem, the result of fair outcomes needs to be constantly monitored. If required, an organizational process to redress a raised query on a deployed model can be designed, developed, and institutionalized. If the number of results from the model is so large that enterprise teams are unable to manage them manually, they will need to develop effective sampling methods. The results of all three streams are baselined and deployed into production. Once in production, clear governance and reporting ensures auditability and visibility for outcomes. The reporting covers all aspects of the model, operational performance, explainability values, external queries, and their results. Models that do not yield results with planned outcomes will be reconfigured or even withdrawn. Deploying Explainable AI Organization-Wide Organizations implicitly believe that explainable AI is only applicable for human-related outcomes. However, if they establish a policy of making all model-based decisions explainable, then they can deploy those models with rigor and discipline. For example, an organization's vendor management team may cancel contracts with a supplier based on predicted component failures. That supplier would need to understand how that decision was reached, which an explainable AI model can determine. When explainable AI/ML becomes a way of life for model development, enterprises

can understand its necessity, and consequently, they can optimize and automate development processes. Maximizing Explainable AI with Governance Transparency is necessary irrespective of whether decisions are people-based or machine components-based. As organizations roll out automated solutions at scale, they can ensure AI transparency by explaining what an AI model does, identifying how it achieves these outcomes, and redressing any unjustifiable results. Clear governance ensures accountability and transparency, which is key to developing trust for an organization's end-customers. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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The AI Evolution: From Transforming Businesses to Overhauling the Social Order

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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. Sumit Kumar You have these already downloaded We have sent you a copy of the report to your email again. The COVID-19 era has seen widespread adoption of digital transformation initiatives. Artificial intelligence (AI) has modernized business operations even during such uncertain times. It can reduce a product's time-to-market drastically and design effective go-to-market strategies. Technology giants like Microsoft, Adobe, SAP, IBM, Amazon, Google, and Apple have extensively embedded AI capabilities into their product suites to enhance overall customer experience. Adobe Sensei is one example of an AIML tool which seamlessly integrates Adobe products to create a personalized and immersive experience for customers. In the pursuit of everything-as-a-service (XaaS), these product-based companies have unleashed their cloud platforms to enable machine learning-as-a-service (MLaaS). Azure ML, Amazon Sagemaker, and Google Tensorflow are some prominent names in this area. For online businesses that have witnessed a surge during the pandemic, AI tracks customer buying patterns, implements hyper personalization, and leverages sentiment analytics, in order to enhance customer experience. AI Now For some years now, AI has played a major role in simplifying business operations, such as detecting fraud in unusual transactions, facial recognition, identifying phishing attacks, computer vision, and insight extraction from large documents. As the global economy recuperates from the initial impact of the pandemic, a shortage of desk workforce and other physical restrictions have forced businesses to seek alternatives and virtual means of communication to ensure business continuity. Digital assistant chatbots and voice assistants have become breakthroughs during the pandemic, as there is a huge demand for virtual interaction. From intelligent drones delivering essentials to IoT devices manning command centers, AI has set the stage for new market opportunities. AI for Social Transformation: Key Focus Post COVID-19 AI brings a major technological revolution akin to what was brought by the internet several decades ago. Pervasive computing and quantum computing are other big upcoming changes. The significance of any technology lies in how much transformation it will bring in the life of an ordinary person. AI has the potential to change most of our social problems and can prove to be a game changer for social transformation. Here are some areas that will be impacted by AI: Vaccine development: One area where AI has proved to be beneficial is in vaccine development. Many tech and pharmaceutical companies have used AI to identify immune responses to COVID-19. For instance, London-based DeepMind, an AI company acquired by Google in 2014, has used its neural network AlphaFold to simulate the structure of the SARS-CoV-2 virus based on the genetic sequence. In another instance, biopharmaceutical giant Pfizer has leveraged IBM Watson to develop and test its COVID-19 vaccine. Infrastructure: In the area of infrastructure, AI plays a pivotal role in reducing emissions and in building maintenance. Canadian tech firm Brainbox AI uses data from weather forecasts to predict the energy consumption of buildings. Air conditioning systems can

accordingly be adjusted, thereby reducing the carbon footprint. In materials science, AI can be used to calculate the stress and strain in an object by analyzing images. Such an analysis can prevent potential damage to any building or other structures like bridges. Education: AI can bridge language barriers, enabling people to converse with others from different regions. This is enabled by speech-to-speech translation tools such as natural-language generation (NLG). Google Cloud's Natural Language API, Amazon Comprehend, and IBM Watson are some NLG tools that can be integrated with any app. Such language applications of AI can help the relatively less tech-savvy understand content from an electronic document, newspapers, or a self-service portal. Healthcare: Amid a crucial shortage of healthcare services, smart wearables offer a convenient solution by monitoring critical health parameters, providing dietary measures, and raising health alarms. For instance, robotic sanitation machines have been widely used during the pandemic and AI algorithms developed by India's Defence Research and Development Organisation (DRDO) have been used to detect COVID-19 by analyzing chest X-rays. AI can also provide remote healthcare facilities to areas where adequate infrastructure is not available. This was especially so during the peak COVID-19 waves, as most people could not directly access hospitals. AI can also be used to identify the genesis of a complex disease like cancer and provide timely and effective treatment. The Limitless Potential of AI This is just the surface of how machine learning can revamp our quality of life. The concepts of artificial super intelligence (ASI) and reinforcement learning are not far from becoming prevalent. Meanwhile, the true potential of AI, where it visibly impacts the life of the common man and brings about social transformation, is yet to be realized. Social good would now be the principal focus around which AI technologies would be developed and adopted across all domains. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Customer Data Ethics in the Age of AI and Social Media

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face consequences. Customers do not hesitate to switch to competition if they feel their data will be misused. According to a report by the World Federation of Advertisers, ethics is three times more important to company trust than competence, and even a 1% increase in brand trust will drive up the market value three-fold. Firms engaging in unethical practices have to bear the cost of huge regulatory fines and long legal battles, which take a toll on a company's brand image, customer loyalty, and trust. Below are some scenarios that can lead to data misuse: Complicated and lengthy privacy policies contain hidden clauses that can breach an individual's personal space. Companies use data for unintended or undeclared purposes such as sharing or selling data to third parties, personalized ad targeting without consent, analyzing private conversations from voice assistants, and so on. As companies embrace AI-driven decisions, biased recommendations can occur due to skewed datasets, erroneous algorithms, lack of human supervision, unethical practices of developers, and more. Lack of visibility in usage for data exchanged between governments and private firms. Oversharing of personal data by individuals. Widespread remote working leading to new security vulnerabilities. To ensure data privacy, companies currently: Take action to meet the new privacy regulations and laws but treat it as mere legal compliance Have detailed privacy policies that are accurate by law but protect only the company Establish and maintain data privacy and protection as IT programs Have mandatory training programs on privacy for employees Safeguarding against unethical data usage While companies ensure data privacy and protection only for legal compliance, a data ethics program goes deeper and identifies what companies need to do to gain customer trust and increase brand value. Organizations that realize this have taken a number of steps such as appointing a chief data officer (CDO). The rate of CDO appointments grew from 12% in 2012 to 67.9% in 2019 and a CDO's role as a data ethicist is gaining prominence, a 2019 survey by NewVantage Partners found. Even tech giants like Google, Amazon, and Twitter are putting data privacy at the center of their business objectives. So, what should a data ethics program comprise? Data ethics as a core value that ensures accountability from the leadership to the individual level User friendly presentation of privacy policies A responsible and explainable AI framework Privacy frameworks that keep pace with regulations and laws Training programs relevant to business functions and data collected While businesses play a major role in this responsibility, governments and individuals should do their part as well to create a win-win situation. Governments can enforce ethics by making companies abide by the law, regulate excessive data collection on the premise of the pandemic, create standard data ethics frameworks to help companies innovate without the fear of non-compliance, and raise public awareness. Individuals on their part should act responsibly when they share data on social networks or websites. Customer trust is the cornerstone for businesses to thrive and companies should make genuine efforts for ethical data handling, to create outcomes beneficial for themselves and their customers. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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Data anonymization in AI-based models: FHP and DP

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suggest several best practices, and spell out the rights of consumers and businesses. However, the actual implication of data privacy is different for each legislation. Data anonymization for safeguarding privacy Regulations often refer to terms such as data masking, data encryption, and data hashing. These procedures ensure de-identification of data, thereby preventing any leakage of personal information. They protect sensitive data and establish data privacy control mechanisms. In data masking, the original data is changed such that there is no reversibility, whereas in data encryption, the original data is transformed into encoded data and is restored using a key. Some of the well-defined masking techniques are shuffling, substitution, number variance, character scrambling, perturbation randomization, and checksum masking. The encryption techniques include different algorithms such as Advanced Encryption Standard (AES), Rivest–Shamir–Adleman (RSA), Blowfish, and others. Data privacy enablement or data anonymization is a type of information sanitization wherein the personally identifiable data is removed from datasets, by applying encryption or using masking techniques, to preserve the privacy of a data subject. Post data anonymization, datasets will not contain any personally identifiable information. Thus, the risk of unintended disclosure of personal data is significantly reduced, and the datasets comply with the regulatory requirements. In view of growing demands for using artificial intelligence (AI) in decision-making, businesses are seeking AI-based models that can use post-anonymized data to leverage the benefits of AI while adhering to privacy control. When masking or encryption techniques are used for data anonymization, the original data patterns and interrelationships are lost. So, the models developed based on the data derived from traditional data anonymization techniques cannot provide meaningful insights. When data is anonymized for numerical fields, the original data patterns are lost, making it unsuitable for analytical modelling. Only a few techniques can circumvent this problem. Two techniques that can effectively support data anonymization for numerical data analytics are: (1) Fully Homomorphic Encryption (FHE), and (2) Differential Privacy (DP). While the former is an encryption technique, the latter is a perturbation method. These two emerging techniques comply with privacy regulations and ensure effective outcomes by developing analytical models on anonymized data, such that the model outputs are similar to those based on the original data. Understanding the FHE and DP models Fully Homomorphic Encryption allows users to perform numerical computations on the encrypted data and generate output in the encrypted form. The decrypted result is identical to the output of the original data and the operations performed on the encrypted ciphertext. FHE is the strongest encryption technique that allows the evaluation of arbitrary circuits composed of multiple types of gates with unbounded depth. It currently supports multipliable operations (addition and multiplication). Research is being conducted to enable it to perform more computations on the encrypted data. Currently, only limited machine learning (ML) models are available that support work on encrypted data. In FHE, the multiplicative depth of circuits is the primary practical limitation as it does not support many calculations and requires substantial memory and computational time. Differential Privacy uses the data perturbation technique with associated methods for limiting statistical disclosure and controlling privacy risks. DP collects and shares aggregated information about user data while maintaining

the privacy of individual users. The anonymized data from DP maintains similar aggregated statistics as that of the original data. Therefore, when AI models are applied on the anonymized data, its accuracy will be similar to that of the original data. Generally, the internal calculations are done based on the aggregated data in most of the AI algorithms. Hence, the AI model developed on DP-enabled anonymized data provides outputs similar to the original data models. The main usage areas of DP are real-time dashboarding and analytical modeling. FHE and DP – Pros, cons, and the way ahead The FHE technique is strong in terms of data privacy when compared to other ways of decoding the original data. However, DP scores higher in terms of parameter usability, computation support, memory requirement, and algorithm support. Currently, considerable research is being conducted on the usage of DP, and new methods and techniques are being invented for handling different types of data. It is noteworthy that the top ten technology industries are already using DP for privacy compliance and AI modeling. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Uncovering the Importance of Continual Learning at Work

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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. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Blog Abhijeet Mahankal You have these already downloaded We have sent you a copy of the report to your email again. The more we learn, the more we discover our true potential as an individual and as a community. Learning helps us enhance our endeavors as it helps one build adaptability and innovation. And TCS supports and encourages its associates at every step of this learning journey. We had a chat with TCS employee Abhijeet Mahankal. Over the years, he has imbibed this organizational culture of curiosity and learning and admits today to being a self-directed learner. About four years ago, Abhijeet embarked on his career path as a developer through CodeVita. Since then, his quest towards digital excellence has found a perfect home in the rich and integrated learning suite offered by TCS. Starting with the Digital Cadre journey, his applied learning capability has fueled him to reach greater heights. With over 400 digital competencies, currently, he is the Technical Lead at TCS BFSI Digital Platforms and Services, solving real-time business problems for clients across the globe. An infographic summarizing the learning accomplishments of Abhijeet. These include 87 certifications, 440 courses, and 178 competencies.   The starting point At TCS, every learner is celebrated and given the opportunities to imbibe knowledge from various fields. For Abhijeet, it all started with having a clear learning path in place and prioritizing it as a necessary slice of his daily schedule. "Just like we are advised to exercise daily for sound health, in a similar way, exercising the brain is also essential. Spending an hour daily on acquiring new skills either in a technical or non-technical domain, goes a long way to keep the momentum active," says the learning champion. This motivation has helped him leverage the learning ecosystem and boost his soft skills along with upskilling and reskilling himself on trending technologies such as Automation, Machine Learning, Data Science, Cloud, DevOps, Full Stack and so on. Making room for professional learning In a world where the boundaries of home and work blur, learning, quite naturally, tends to take a backseat. However, realizing one's potential and exploring it further remains essential. Small initiatives, rolled out every so often, keep the curiosity engine going. Abhijeet shares below a few tips on how to stay at the top of one's learning and reskilling game: Complementing daily work with doses of learning With a little consistency and a broader perspective, Abhijeet has developed an internal compass that guides his work, decisions, and interactions. His day-to-day work experiences–such as addressing a customer's challenge, collaborating with a colleague, or brainstorming a unique business strategy–have become opportunities to leverage his contextual knowledge to develop fresher ideas. Adopting the Learn, Mentor & Implement (LMI) strategy Sharing the newly acquired knowledge with

others around is a great way to create a productive digital workplace. Abhijeet has personally mentored over 50 associates in their learning journey. He has been vocal in TCS' internal employee-connect platforms through informative articles and life-changing hacks. He also regularly participates in various talent development initiatives at TCS guiding his colleagues to achieve their career milestones. "Free flow of knowledge among your peers will help garner valuable feedbacks, complete the learning process, and increase your confidence in the concepts learned so far," he says. Reaping the benefits of wisdom When success is applauded, it pushes people to think out of the box. "I have been blessed with seniors who acknowledge my success and ensure our customers know of it as well," says Abhijeet. An influx of peer appreciation and congratulatory messages from customers flowed in when he leveraged the four pillars of Business 4.0™ to craft better solutions: • Created exponential value with automated DevOps, task automation, and machine learning to reduce costs and resources. • Drove mass personalization with technologies such as modern web development to create new application programming interfaces for enhanced customer experience. • Created new digital ecosystems for clients with cloud computing and data science. • Automated risk mitigation in crucial operations and minimized application incidents using cognitive automation mini projects. The road ahead Currently, Abhijeet is working towards becoming a Technical Architect, targeting new milestones every week to complete mini projects, crack hackathons, and complete courses for the assigned role. When asked about the future, he put out his larger perspective in terms of how his skills would benefit the business at large. "With continuous learning and refining my skill sets, my future aspirational goal is to incorporate smarter business models that are scalable to Industry 4.0 and beyond." Indeed, learning and mastering the ability to learn widens one's horizon and worldview. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Telemedicine: A new norm in clinical trials

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conference assessments, and at-home phlebotomy. The benefits of telemedicine are numerous in that the participants' concern for safety and convenience is automatically taken care of. Also, diversity in the recruitment of trial participants and engagement in clinical trials has vastly improved, leading to a more accurate observation and reporting of real-world effects of drugs and various therapies. In the traditional clinical trial setting, the subject or a researcher is required to commute to the site and report to the investigator, resulting in the wastage of an entire day. Due to telemedicine, travel time is entirely nullified, thus reducing the time and cost, and the zero-touch approach minimizes the risk of contracting any infection with the entire process being executed from the comfort of one's home. Sustenance of telemedicine in a post-pandemic world While the adoption of telemedicine has been a game changer for clinical trial sponsors and all the stakeholders involved, its sustenance should be given high importance in the post-COVID-19 world, which is slowly falling back to its new 'normal' way of functioning. The most important factor for any modern technology to sustain is to make it simple, unified, patient-centric, and with an agile regulatory framework design incorporating critical elements such as privacy and cybersecurity. Trial participants must be made comfortable with the technology irrespective of their educational or social backgrounds. The aspects of enhanced patient safety and data quality due to adoption of new modalities like electronic and multimedia consenting as well as the enablement of real-time alerts to patients and physicians should be reinforced. Various telemedicine tools that help in reporting and managing adverse events during the trial phase must be streamlined and efficiently configured for both the subjects and site investigators. Maturing these technologies in a post-COVID-19 world is of utmost importance. Before the pandemic struck, one of the most reported causes for patients not wholeheartedly embracing telemedicine was issues around privacy and security. The need for processes to be made regulatory compliant cannot be overstressed. Industry compliance assures the user of safety and integrity of the telemedicine process. Personally identifiable and sensitive data related to phone and video visits must be kept safe and secure by following the required protocols and compliances. remote patient monitoring (RPM), patient-reported outcomes (PRO) and telehealth approaches must be added to the routine methodologies of clinical trials. Patient portals must be made unified, simple, and easy to understand by making technology an enabler rather than a complex and mystic tool. This will help create health equity among all users irrespective of their educational, social, or economic backgrounds. The way forward Though the scope of making these pathbreaking and disruptive changes sustainable to the healthcare system in terms of telemedicine is still at an early research stage, factors such as ease of use, affordability of the technology, flexibility of the regulatory guidelines, and robust technology framework have the potential to pave the way for an agile and lean model of virtual clinical trials in the future. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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configuration, optimization, automation and operations. Reduction in the total cost of ownership (TCO) in ORAN is an attribute of choice of components and functions suited for the operator's network, which is a major shift from the one-size-fits-all approach in legacy RAN. The framework of ORAN allows businesses to pick the best applications for them, saving them from spending money on functions they don't need. ORAN recognizes that each business is unique and should be able to tailor its technological applications to specific operation. Apart from the impact on cost, ORAN promotes intelligence using automation and orchestration, which itself is based on open-source projects. Automating various processes saves executives time and effort and increases the overall accuracy of data contained in the network. Accessing precise information in real-time enables better predicting and strategizing. A few roadblocks As phenomenal as the migration to ORAN is in many ways, it demands a careful, skilled and well-thought-out strategy from the early stages of design, engineering, testing, integration and deployment. Improving technology is always met with pushback and questions about the necessity of a new system. It is easy for some businesses to stick with the technology they are comfortable with, rather than learn to use a new one. Some of the challenges associated with migrating to ORAN include: · High skilled resources needed for design and engineering of O-RAN · Dealing with large supply chain vendors and equipment manufacturers and managing wide varying lead times especially on chipsets · Integration of open interfaces across multivendor components · Managing the lifecycle from an individual component to complete ORAN that deals with software and hardware of L1, L2 and L3 · Dealing with disaggregation of RAN components for FCAPS · Ensuring security at open interfaces of ORAN between different disaggregated components Understanding the challenges associated with the widespread deployment of ORAN allows the network developers to find solutions and ways to ease the transition. How system integrators can help ORAN integration allows the RAN to connect with other functions through horizontal openness that only works with open interfaces, between the various components. Integration comes in two parts: integrating the hardware and software into the current site and data centers' infrastructure, then setting up the ORAN software for automation on COTS hardware. There are the suggested options for deployment, and integration of ORAN by CSPs: · Create internal engineering and design organization to deal with ORAN, · Appoint a master system integrator (SI) to oversee design, engineering, integration, testing, automation and operation setup. · Pick the master OEM to take the SI ownership as mentioned in point 2. Using a master SI is the best possible and logical option, as the SI can facilitate KPI and SLA-driven integration across the entire solution (including the integration of BBU software and open radios). Additionally, these integrators are responsible for submitting requests for information (RFIs) and requests for proposals (RFPs). System integrators also would be the ones to sign the contract with the operators and construct the system utilizing various hardware and software vendors. The master SI would know the system inside and out and be able to make rapid decisions about altering the design of the network and including new elements for better operability. The role of master system integrators is crucial, and this is demonstrated through the Facebook TIP community that heads the Open RAN initiative. The community solves problems regarding ORAN deployment, configuration, flawless end-to-end system integration

with automation use cases like zero-touch provisioning, and other use cases related to orchestration and automation through standardization and clearly defined methods and procedures. A master system integrator will have vast and proven experience in the multivendor, and, multi-technology network functions of whole telco architecture ranging from core, transport, RAN, OSS, IT-IS, NFV, cloud, automation and orchestration. This usually makes them the ideal candidates to guide CSPs and MNOs in their quest to adopt ORAN. Businesses transitioning to the Open RAN will have it easier with minimal issues through the right choice of master SI. Benefits post transition are numerous with no lock-in for vendors and operators get greater control on the last mile of mobile network, which gets maximum investment. Managing the deployed ORAN network also lends itself better to innovation going forward, in line with the business model of the operator. The master SI has all the controls to enable intense use of machine learning and AI at various layers of component deployments with regard to hardware and software, to make automation and analytics more effective, long-lasting and resilient. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Incorporation doesn't only mean providing an individual easy access to a bank account. It calls for every citizen to have full access to affordable and useful financial services and products that guarantee admittance to reasonable and valuable monetary administrations to meet their requirements regarding installments, exchanges, wealth management, and so on. The majority of the unbanked populace avoid the financial reach due to the costs involved in electronic transactions, for instance, charges levied on NEFT, RTGS, mobile wallets, and so on. Moreover, most banks have a minimum balance requirement on accounts that are hard to maintain for individuals on low pay. These aspects need to be addressed if we want to drive financial inclusion in true spirit. Banks must also focus on adopting a mobile first strategy by using applications to gain access to account data as well as different functionalities, for example, cash flow and so on. There is also a lack of trust among consumers with respect to the security and reliability of the newly established platforms. To promote confidence, authorities must release clear rules and guidelines shielding customers and allowing them to make informed decisions. Along with moving to portable banking, it is critical to move away from physical branches. Some of the banks today depend on branches for specific actions like account opening, which could be changed through online administrations by means of biometrics. Most importantly, a well-designed and balanced open banking program can increase the banking activity by providing access to transaction data across banks and enabling low-value payments. Open banking programs can help build credit capacity and offer legitimate alternatives to loan sharks. What Now On the whole, for the success of financial inclusion program and to reach the last milestone, there has to be a multidimensional approach through which existing digital platforms, infrastructure, human resources, and policy frameworks are fortified, and new technological innovations are promoted with financial inclusion as the lodestar as it carries the potential to amplify the benefits of economic growth to the society at large. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Riding the Wave of Open Banking to Digitalize Trade Finance

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finance data through open APIs. In such a model, we see banks as mostly data consumers who use APIs to facilitate trade finance processes. The capabilities that are emerging through these platforms are paperless trade, compliance, onboarding, governance, transaction initiation, logistics management, etc. These facilities will enable the electronic execution of financed trades with increased efficiency, speed, and accuracy, reduced risk and fraud, and improved compliance and productivity. Further, banks will be able to enhance trade finance services for corporate customers with better visibility into compliance, onboarding, and governance. Benefits to Banks While blockchain-based consortia and APIs help establish transparency and trust, the value delivered by a distributed ledger ecosystem coupled with APIs goes beyond that. APIs can fill the void of information asymmetry by bridging the gap between the platforms and involved parties through easy integration of their trade processing systems. Banks, in turn, can leverage the power of APIs by integrating existing trade finance asset distribution channels with the digital trade finance platform. The APIs can then strengthen the banks' asset distribution portfolio by democratizing near real-time access to sophisticated trade data. Experts claim that this could further alleviate the potential financial stress due to the upcoming Basel IV requirement, where banks would need additional capital that could otherwise impact the return on their equity significantly. Banks, thus, would be able to offload their balance sheets and transfer some of the risks through asset distribution. Big trade finance banks like HSBC Holdings PLC report that institutional investors are showing an 'unprecedented' level of interest in buying trade finance assets. Integrated trade finance platforms empower banks with information and clarity and improve risk assessment for trade finance assets. The potential integration with digital trade platforms through APIs results in growth opportunities for banks in trade finance asset distribution. According to experts, the distribution of trade finance assets to investors could grow to a multitrillion-dollar market in the coming years. The Way Forward In realizing the potential of digital transformation, the International Chamber of Commerce (ICC) has launched the Digital Trade Standards Initiative (DSI) – a collaborative cross-industry effort to enable the standardization of digital trade. As part of the initiative, ICC has identified two business use cases – Bank-to-Bank Guarantees re-issuance and Bank-to-Corporate Export LC Advising – as pilot cases to set base API standardization. Moreover, Trade Finance Distribution Initiative, a collaborative project for banks and asset managers, is trying to develop market standards and trial new technologies. It now counts some of the world's biggest trade finance players as member banks, including Standard Chartered PLC, Deutsche Bank AG, Crédit Agricole SA, and HSBC. Banks should be readily embracing these standards while collaborating with other ecosystem participants. As part of the global rollout of open banking, most banks have transformed their technology, enabling access to unmatched digital opportunities in the retail banking segment. The logical step next is to leverage the knowledge and make suitable investments in corporate and institutional banking portfolios. However, these integrations will not happen overnight. Banks require a strategic will, industry consortia, considerable resources, and sufficient budget to make this happen. In this climate, banks that are ready to 'build on belief' of open banking as a business model are sure to position themselves in the industry leaders' league. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age

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However, without the right strategies and organizational apparatus, such an endeavor can end up in chaos or can be outrun by the next disruption in the marketplace. In a typical scenario, organizations partner with designated IT service providers, but most of these technology partners act as doers and not as strategic or consulting partners. Most thought leaders today emphasize the need to innovate in order to stay ahead of the curve. TCS EAS leadership, however, took a step further to empower today's enterprise architects to become tomorrow's leading game-changers. This is where the TCS EAS-Enterprise Application Architect comes into picture. So, what is it? It is a specialized flagship initiative powered by the TCS Enterprise Applications Services, one of the most advanced business units in the organization. The program is borne of TCS' vast industry knowledge and wide customer base and provides exposure to various applications or domains with an assignment-based learning strategy based on solving challenging customer problems. This is different from the traditional, predefined Open Group Architecture Framework by TOGAF or Zachman in that it offers a proprietary set of frameworks designed to align with and optimize specific business requirements of different industries and customers that TCS caters to. What's in it for a young professional? When my journey with the program started, I was already working as an Enterprise Architect (EA) for one of TCS' large accounts in Communications, Media, and Information Services. Someone asked me why I had decided to join this program when I was already an EA, working for a big client. I responded highlighting on the need to go deeper and gain better insights from TCS' diverse market presence that could help me add more value to the work I do, constantly learn, and hone my professional acumen. I was one among few associates to be nominated for the program. Even fewer were selected at the interview round; people from several areas of expertise (Oracle, SAP, Salesforce, and other ERPs) came together at a single learning forum. The days that followed saw a lot of cross-circulation of ideas and experiences. After being given an overview of different Enterprise Resource Planning (ERP) systems and EA processes, we had to design the final presentation on a business case study that was poles apart from anything we were familiar with—be it our program or account or vertical or industry. This was to become the real test of all my learning so far. It was thrilling to gain a new perception of something so different from my own domain. Collaboration with teams was the catalyst that helped one take in new learnings and generate fresh ideas. Today, am proud to be one of the first associates to graduate with an Enterprise Application Architect certificate at TCS. The experience helped me become aware, understand, and collaborate with different technology and industry SMEs. I went into the program eager to chart out the future course of my career; I emerged a stronger individual and a sharper professional. What the journey helped me learn included: This is an amazing career path for a Technical or Solution Architect to becoming an EA. It holds a three-pronged benefit, where an individual can scale up their career growth at EAS, our customers reap the benefits of a digital era, and TCS as an organization expands its opportunities and demand. Our suite of traditional and advanced EA services provides our customers exactly what they need to succeed. Be an innovator. Design the future of businesses in the years to come with opportunities at TCS EAS here. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks

Achieving stronger brand equity through customer centricity and AI-driven marketing

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Leadership Study, customer centricity was rated the #1 cultural trait across leading companies (defined as those with a high level of growth and profitability), even higher than shareholder value. This increased focus on customer centricity is providing new impetus for creating highly customized, real-time marketing experiences. A figure depicting leaders ranking customer-centricity #1 as a cultural priority, above stakeholder value, while followers ranked it #6. This finding suggests that higher-performing companies embed a "customer first" mindset across the organization. The various other factors considered are innovation; diversity, inclusion, and equal opportunity; being quality-driven; environmental sustainability; learning, upskilling, and reskilling; employee experience; transparency; being purpose-driven; and being risk-tolerant.   Global demand centers of leading Fortune 500 companies and e-commerce giants such as Amazon are proof points of early adoption of a full-cycle customer journey with go-to-market strategies. While B2C companies have been ahead of the adoption curve, B2B players are very quickly catching up. How CMOs can gain traction in driving customer centricity The marketing function has more impact than others in the C-suite in making the shift to a real-time, customer-centric, full customer life-cycle strategy. Why? Because the CMO can: However, there are missed opportunities for creating an end-to-end customer-centric marketing experience. The TCS 2019 CMO Study findings underscore this. In fact, the study shows that overall, only 4% of all marketers surveyed have developed the ability to interact with customers in real time across all four stages of the brand experience. Some of the gaps come from areas that are traditionally not under the purview of the CMO and include functions that are managed separately, typically sales and customer engagement (which includes nurturing customer loyalty). Increased collaboration between these functions is essential to generating high levels of demand and better customer loyalty in the new era. (There are other gaps identified by the CMO study. Most company CMOs are underusing analytics across every stage of the customer experience. The study also identifies several areas where CMOs have more opportunities to turn prospects into customers, including adopting a 'helpful partner' approach and responding to the customer during pivotal moments during the brand experience. Read more insights in the CMO Study report How Leading CMOs Captivate and Convert Customers for Life.) Collaboration with the sales function: The information needed to complete a sale is available today as online product or service descriptions, along with analytics-based sources of consumer purchasing behavior, consumption patterns, interaction insight, life style correlation, and media consumption. Further, AI-driven algorithms are enabling marketers to respond in real time with highly customized offers based on customer personas. Correlating sales data with marketing initiatives will enable CMOs to pin down return on marketing investment (ROMI) faster. In return, sales gains insights about existing customers as well as future prospects. Collaboration with customer engagement function: Opportunities to enhance the customer experience occur across all customer interactions following a sale, including onboarding, order management, and billing, delivery of goods, after-sale servicing, and loyalty management. (Read the TCS CMO Study report Using Analytics to Predict What Customers Need Next for findings that show that nurturing customer loyalty is a neglected part of the customer journey—and is costing businesses in significant revenue.) To drive consistent,

customized, and compelling brand messaging across these activities, seamless information flow is required, which can be achieved by connecting marketing technologies with finance, supply chain, legal, and people management technologies in the organization. In other words, the individual function value chains need to smoothly communicate and align with each other for optimal revenue growth and profitability. The collaboration across functions also comes with two major challenges: 1. Technology limitations 2. Process siloes Technology limitations such as disparate platforms across functions, geographies, and data islands are being overcome by advanced infrastructure capabilities. AI-ML will further help build advanced customer profiling capabilities to address the challenges of anytime, anywhere marketing. Real-world example: A leading UK retailer deployed an integrated global command center to give an end-to-end view of demand and supply connecting marketing campaigns, e- commerce, customer interaction, and global supply chain. This led to improved order fulfillment, enhanced customer experience, and higher supply chain efficiency. Process siloes across functions are rapidly disappearing as technologies have begun to talk to each other through APIs and intelligent connectors. Furthermore, process modeling enablers, such as digital twins and process mining, are enabling futuristic process modeling to help build business flexibility and resilience as the organization changes. Real-world example: A leading Australian broadcaster was able to maximize ROI on ad spends for its clients through synergy between their media finance, sales, and ad operations by eliminating silos. Organizations that embrace these changes will see an unprecedented increase in customer loyalty and brand recognition. Increased collaboration, customer centricity, and an integrated IT and business operations model are imperative for global enterprise CMOs to attain new heights in brand equity, increase profitability, and fuel growth. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Managing Websites During M&A Requires a Strategic Approach

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process. Business models: Do the spin-out first The COVID-19 pandemic has encouraged many companies to reconsider their business model. Product-oriented companies are often looking at subscription models. Service-oriented companies are focusing upon experiential marketing. Once a spin-out has been completed, there is often an opportunity to think about these different value-added strategies. Understanding your cost structure and individual customer profitability are key tasks in making this kind of innovation work. Many companies find that their profitability is focused on a small number of customers. Typical statistics are that roughly 20% of customers account for 220% of profitability. Understanding this distribution (often referred to as a Pareto distribution) allows marketers to focus on increasing the profitability of the 80% of customers who are currently unprofitable. In some cases, a marketer may decide to drop such customers. Global enterprises: Translation, regulation and CMS For large companies, managing their web property across multiple countries is a large issue. Use of a content management system or CMS is important. Without a CMS, it may be hard to keep track of the original document from which other language versions are created. In regulated businesses, ensuring that each country's content complies with the local regulation is important to maintaining the business. Historical 'barnacles' mess up pages A typical web problem is the accumulation of bad HTML, metatags, descriptions and titles. A good rule of thumb is to ensure that CSS and HTML content is reviewed regularly. Any HTML or metatags over three years old is likely to require editing. Think of your website as growing barnacles over time. Graphics: Load times matter Many websites have attempted to add graphics to their content to make them friendlier. However, slow load times on graphic-intensive pages may reduce the willingness of visitor to wait around. It will certainly reduce your Google ranking. Measuring your latency is an important but sometimes overlooked task in any content migration. Migration activity is often overwhelming in its workload for teams. The tendency is to focus on just getting it done. But this is a tactical approach to what may be a strategic problem. Measurement gives a migration team a way of looking at the results of its migration. At the very minimum, the measured performance of the transformed website should match that of the old site. But a new website often provides the ability to improve its performance. Improved performance may pay for some of the transition costs. Dynamic pages tend to come in two flavors. The first flavor is content specific to a company. The second flavor consists of marketing tags used for tracking visitors. The amount of work for both can be high. Tailoring hundreds of pages for a name change is important to get right. Marketing tags generally have two architectures. The first - like customer data platform Tealium - tends to put lots of code on each individual page. The second type such as Ensighten only puts a single line of code on each page and keeps functionality on a server. The amount of work with each architecture varies. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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

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Quantum Computing: Driving Fast, Accurate Decision-making in Financial Services

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and has been backed by industry leaders. Key Enablers of the Evolution: Start-ups, Industry Backing Tech firms globally have been engaged in the groundwork with the principal focus on understanding and refining it for application. Over 30 global technology leaders have collaborated with over 100 leading academic institutions, more than 50 government/non-profit organizations, and more than 200 start-ups to build Quantum Computers. According to current estimates, research in the area would have seen global investments of about USD 64.98 billion by 2030. The collaborations began with 2 Qubit capacity and now have hit 128 Qubits. The research has gathered steam with a key differentiating factor – large-scale involvement from the start-ups. Given the current trend, we could see over 200 start-up companies take the lead in the Quantum Computing race ahead of the global technology leaders still engaged in research with the release of commercial quantum computers a pipe dream. For instance, start-up firm Rigetti Computing claims to have created 128 Qubit computer. Quantum Computing & Financial Services While we await the large-scale availability of Quantum Computing across various industries to facilitate faster decision-making and drive efficiency, the technology holds promise of undeniable gains for the financial services industry. Given, financial services firms make transactions using complex algorithms that are often time-intensive, computing speed and accuracy in real time is paramount. Quantum Computing with Quantum Algorithm can potentially help handle complex processes involving historical data to produce accurate results. Two major use cases - ADM using Quantum Computing (Automated Decision Making), HFT using Quantum Computing (High-Frequency Trading) – are set to offer a huge breakthrough as these require extreme computing power for real-time processing with no errors. ADM: These decisions are based on factual data with variable credit, collateral, and liquidity constraints in financial services. To achieve this, machine learning algorithms are being used with a large number of training data sets, which is often a time-consuming process. Using Quantum Algorithm, a quantum computer can provide a quantum model of data sets and process them in milliseconds to ensure faster and accurate decisions. HFT: This involves extremely complex quantitative buy-sell strategies for a large number of orders within milliseconds. This, in turn, needs extreme computing power to analyze the ever-fluctuating trends and conditions in multiple markets and exchanges. That translates to price changes in real time. Quantum Computing trading will enable faster calculations and identify the interdependence between trades using Quantum dot Register, which will minimize the risk on a trade, execute the orders on time and drive the profit potential. Quantum Computing + AI and ML: Fasten your Seatbelts While the potential of Quantum Computing in driving speed and accuracy is yet to be wholly realized, there also are some challenges to the application. Key among these is the amount of energy needed to power the technology that can be extremely draining on the resources. A good route to take for optimum utilization would be to combine Quantum Computing with AI and ML. Tying one end of the rope of Quantum Computing with Artificial Intelligence and Machine Learning will ensure the optimum utilization of the computing power, less error prone, and more powerful operational and computing efficiency in financial services. Quantum AI algorithms can be used to analyze financial risk. The risk assessment computation using Monte Carlo simulation is an overnight task. The quadratic speedup provided by Quantum Computing can achieve this in near real time. University of

Bristol's Quantum Engineering Technology Labs (QETLabs) developed an AI-based Quantum Algorithm for Quantum information processing and quantum sensing. Whereas, Quantum ML can cut through the complexity in trading optimization using the valuation adjustments model for derivatives, including Credit (CVA), Debit (DVA), Funding (FVA), Capital (KVA), and Margin (MVA). As the volume of data increases, the complexity of computing and time required to analyze, compute, identify and interpret the data also goes up. In addition, quantum data is noisy, hence, it needs ML Algorithms to interpret the data correctly. Conclusion It is clear that start-ups are gearing up to transform the banking and financial services from the current state to a quantum state while most industry leaders remain engaged in research. Going forward, Quantum Computing will be the technology to help effectively address the challenges in near real-time and handle the financial data in a secure way. Additionally, while Quantum Computing can perform a majority of the complex process, we do see added benefits when it is combined with Artificial Intelligence and Machine Learning. Given the speed of innovation real-world applications may be a reality sooner than later. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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iterations for documentation as loan officers and loan processors get better visibility of the borrowers. Subsequently, they can inform the borrowers to provide the relevant information and documentation, which would help proceed through the mortgage approval process faster. Strengthening lender's performance through digital adoption Most lenders also believe that digital processes and advanced analytics would help with better decision-making. The consumer experience standards also contribute to a significant move towards digital adoption. Combining efficient loan originating systems with appropriate digital solutions and implementing Robotic Process Automation, API integrations, and processes will help lenders achieve greater output by reducing the overall cycle time. Looking ahead The new URLA is bound to improve the experience of the borrower as well as help in enhancing the speed of the lender's origination process. Overall, a fresh look and feel makes it easier for both lenders and borrowers to navigate the application. In the coming months, the additional information provided by the new URLA document will allow the development of several AI and ML tools. Down the lane, we can expect to see AI and ML become a regular component in the end-to-end borrower journey from buying homes to possession of the properties. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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Preparing for a Cookie-less Future – Banks to Embrace New Data Strategies

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cookie-less world? Let's explore further. First-party data is more reliable, low cost, and provides greater flexibility across channels. Hence, banks need to focus on creating a sustainable first-party data strategy to survive outside the walled gardens. A bank typically collects first-party data through first-party cookies, pixels, web analytic tools, marketing campaign activities, and account transactions. Broadly, data derived can be classified as non-PII/ unauthenticated data (such as IP address, device configuration, etc.) or PII/ authenticated data (such as e-mail ID, phone number, etc.). To gather and utilize this data, banks need to establish a privacy-compliant methodology that must rest on the following pillars: · GDPR-compliant robust consent management solution that automates the user consent management process and helps banks legitimately collect first-party data and work on it · Real-time customer data platform (CDP) that helps build meaningful customer profiles and journeys in one system, without the need for TPCs · MarTech integration of identity resolution platforms that help create people-based identifiers on customer data However, a bank cannot create a walled garden alone and needs to rely heavily on other ecosystem partners. Such dependency may lead to data partnerships that hold the key to a more open, privacy-first ecosystem. Here, brands can realize the full potential of data-driven advertising while maintaining flexibility and ownership of first-party data outside the walled gardens. Such partnerships unify the capabilities of various industry players such as AdTech vendors and publishers. One such partnership is the data co-ops. It shifts much of the power that walled gardens enjoy to smaller data aggregators in the market. Access to data co-ops requires brands to adhere to stricter rules for privacy compliance, wherein customers give consent before the data is ethically sourced and used for marketing purposes. Into the Cookie-Less Future The change that matters most between the pre-and post-cookie world is a brand's adaptability to attain the amount of data required for meaningful targeting, marketing, and advertising. When third-party cookies are finally put to rest, financial marketers must focus on emerging data management strategies that will help fill the void created by the cookies' demise. These new strategies, supported by a consolidated MarTech and AdTech stack, will pave the way for a cookie-less future. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Blockchain in Capital Markets: Making Inroads One Click at a Time

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greatest benefits of blockchain in areas such as digital currencies (Bitcoin), digital assets, capital markets, KYC/AML. Additionally, blockchain adoption has increased due to growing preference for digital technologies. The technology is also being recognized by various regulators in the capital markets industry. As recently as September 2020, the European commission adopted a digital finance package, including legislative proposals on crypto assets. Similarly, the SEC has recognized the importance of Digital Assets and has published guidelines and frameworks for the same. However, it still begs the question why hasn't blockchain taken off in a big way? We feel, the lack of industry-wide adoption and subsequent demonstration of tangible benefits of the technology, has meant the larger impact of blockchain on entities has not been understood so far. In addition, there is need to understand the impact of blockchain pertaining to processes and operating models of key entities. While the understanding is evolving rapidly the adoption so far has been gradual. Although several leading capital market firms have initiated pilot projects for blockchain, and a few have even adopted the technology on a limited scale, large scale implementation is still awaited. Blockchain in Capital Markets: Who Can Say Where the Road Goes … We have now reached a phase where we can widely start exploring the impact and benefits of the technology. This is reflected in a few examples of blockchain adoption including Nasdaq's Marketplace Services Platform that facilitates the exchange of digital assets, and fintech company Paxos Settlement Service, that facilitates settlement with delivery-versus-payment settlement finality using a private, permission-based blockchain network. Going forward, we see blockchain adoption in the following key entities in capital markets: Custodians: The concept of distributed ledger can be leveraged by custodians to automate many post-trade processes such as reconciliation, asset servicing, settlement, account maintenance, and reference data. Blockchain will result in disintermediated peer-to-peer processing resulting in operating efficiency. Market Infrastructure Firms: Stock Exchanges: Blockchain can improve the operational efficiency of various processes like trade matching, accelerated settlement, quicker KYC. Blockchain can also create new primary and secondary markets for digital assets. Depositories: The technology considerably reduces counterparty risks and increases settlement efficiency through delivery versus payment (DVP) settlement and central bank digital currency. Many asset servicing processes like corporate actions can be faster due to smart contracts and reduced reconciliation.   Transfer Agent: Blockchain has the potential to replace a conventional transfer agent with a digital transfer agent. The process of transferring ownership of a security in issuer records could be confirmed and transacted digitally, while still maintaining end-to-end compliance and guaranteeing user security. Broker Dealers: Will be able to leverage blockchain to bring more efficiency into the existing processes such as client onboarding, AML compliance, reconciliation, settlement. Additionally, blockchain has created opportunities for new instruments like digital assets. It can bring down the cost of operations through reduced reconciliation.   Mutual Funds: Blockchain will have a great impact on client onboarding, reports for customers and regulatory reporting. Mutual fund industry depends on many intermediaries such as transfer agents, registrars and fund administrators and the

technology has the potential to disintermediate through a new model for fund subscription/redemption without the need for any intermediary. Wealth Management: Blockchain brings relevance to wealth management across processes such as KYC, settlement, digital assets. Blockchain brings benefits through faster and cheaper KYC with reduced settlement cycles. Wealth management will gain from advantages of digital assets like faster liquidity, accessibly of assets to larger customer, improved operational efficiency. Conclusion While blockchain adoption depends on the viability of business use cases, the technology is evolving with respect to scalability and security and blockchain awareness among regulators is also on the rise. There is need for partnership and thought leadership collaboration among different entities to gain industry-wide benefits. However, for wide-spread adoption, this technology must also clear regulatory benchmarks. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Blog Rakesh Devpura Ankush Mohla You have these already downloaded We have sent you a copy of the report to your email again. Continuous, scaled and fast innovation is a necessity for any enterprise to stay relevant to their customers and ahead of competition. Enterprises must lead innovation to solve existing problems and create demand in a new and efficient manner or meet the unmet/unarticulated needs. As enterprises drive innovation, they seldom do an introspection of the challenges that are regularly faced around value, reuse, and scale. This ultimately hinders their acceleration towards growth and transformation which leads to lack of industrialization of innovation. Below are some of the factors outlined to be taken into consideration to help to address these challenges, and foster the culture of innovation to drive value with an emphasis on scale and reuse: An infographic on the factors which promote a culture of innovation in an organization. These include business theme (innovation linked to business purpose and priorities), executive commitment (beyond financial sponsorship), integrated innovation (to enable collaboration and remove silos), ecosystem (looking beyond an organization's boundaries), instruments of innovation (leveraging ideathons, hackathons, innovation days, etc), defining the right problem statement, encourage diversity of thought, share and reuse, and measuring progress (both behavioral and outcomes).   In conclusion, fostering an innovation culture with the right mix of the factors mentioned above is essential for organizations to lead and navigate into new frontiers to build a great future with an emphasis on value, reuse, and scale. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Checkout-free Stores: Challenges and the Way Ahead

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pushing the idea of checkout-free stores through Amazon Go. But access to the stores is limited to people having smartphone and an Amazon account with credit card details. This excludes people without smartphones or credit cards. Also, senior citizens visiting the stores may require assistance, for instance, to reach the top of the shelves or carry a heavy bag. Similarly, without assistance, those who are differently abled or have limited mobility might not find a fully autonomous store friendly. Challenge 3: Data privacy While customers are primed for fully autonomous stores, deep surveillance and analysis do not necessarily involve individual consent. With cameras and video analysis powered by sophisticated AI-ML algorithms monitoring and tracking every move, retailers will be privy to a huge amount of customer data. Companies will have to be more forthcoming in their disclosure and efforts to protect customer data to overcome privacy concerns. Challenge 4: Socialization hurdles Going to a store is as much about socializing and experiences as it is about shopping—the occasional hello with fellow shoppers, helping someone, or small talk with the cashier as your purchases are bagged. While checkout-free technology per se does not prohibit interaction, retailers have come up with guardrails. For instance, Amazon Go cautions shoppers may be charged for helping someone struggling to reach the top of the shelf, increasing isolation among shoppers. When customers are shopping as a family, they are likely to tell their kids not to interact much or help anyone else in the store. Challenge 5: Fear of large-scale job cuts Just as autonomous cars threaten drivers' jobs, checkout-free stores are seen as portending job loss for millions of cashiers. As associates will be required only for greeting or answering customer queries, and stocking shelves, the job cuts may be deep. With future store automation technologies in the pipeline, the number of jobs at risks may go up manifold. In the absence of viable alternatives to this potential crisis, retailers might face stringent regulations, thwarting large-scale adoption of checkout-free stores. Every cloud has a silver lining Despite the challenges, checkout-free stores offer a glimpse of future retail, scoring highly on user experience, convenience, speed, and safety, especially during vulnerable times. Technology providers are aware of some of these hurdles and are working to overcome them. For instance, Imagr, a New Zealand-based start-up, is piloting a new approach of tracking and scanning items in the customer's cart rather than people. This shift from 'people' to 'products', combined with a simple and clear data privacy policy, will reduce data privacy concerns and eliminate socialization hurdles. Smart tweaks in the store design (making it more friendly for differently abled) and innovation in payment methods can help integrate cash and government coupons or vouchers. Apprehensions about job loss may also be misplaced as history suggests technology creates more jobs than it destroys. Conclusion Checkout-free stores are inevitable as shoppers expect retailers to make their lives not only easier but also safer, especially in a crisis like COVID. They are likely to be a big boon especially for countries like Japan with aging population, labor shortage, or high labor costs. However, many challenges have to be surmounted for checkout-free stores to become ubiquitous. Innovators will have to come up with a holistic strategy that will go beyond customer experience and cost savings to ensure it is a win-win for all. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Reimagine Business Models in an As-a-Service Economy

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return for a monthly fee, or in the media industry, access to audio and video streaming services. For the customer, it means convenience and price advantage; for the seller, it means higher sales, customer retention, and revenue predictions. The success of the subscription model rests on customer-centric orchestration, powered by the right technologies – this can be witnessed in the 23% of overall business revenue that originates from subscription services in North America, according to the TCS Global Leadership Survey. But it also relies on a targeted, and well-strategized approach to make the transition. So, what's the secret to succeeding, and effecting growth with a subscription model? What necessitates the shift? Customer spending behaviors have changed; they increasingly value access to services and outcomes over ownership, and the ability to use them anytime and anywhere. They demand choice in how they pay, flexibility to pause and resume services, and the ability to tailor them to meet their specific needs. The pandemic has further accelerated these trends, and the ability to orchestrate subscription services with excellence can now demarcate the difference between leaders and laggards. According to a 2021 TCS Global Leadership Survey, subscription based offerings account for 30% of revenues for leading companies, in comparison to just 18% amongst followers. The XaaS (anything-as-a-service) economy lowers the entry barrier for customers in both the B2B and B2C landscape and helps them become asset-light businesses that are more agile and flexible in the face of slow-downs and expansions. Therefore, the shift to the subscription model is necessitated by the customer, the ecosystem, and a long-term view of businesses' strategic imperatives. Subscription models are a necessary value proposition for new entrants – and not embracing this can endanger a business' survival. Successful subscription businesses are today focusing on the ease of customer onboarding, access to the right products and services, and automating their service routines to empower the customer. Getting subscription models right Subscription models are not just about a change in the company's pricing and delivery models but also in the organization's mindset. They thrive on customer retention. And therefore, to participate in the subscription economy, the organization must commit to an unending effort to improve the customer experience, service innovation, sensitivity to customers' needs, and a focus on maintaining healthy retention rates. Key success factors Customer-centricity is critical for success in the subscription economy. Building a comprehensive customer profile with end-to-end cross-departmental process visibility and tying each checkpoint across all customer interactions is needed to offer high standards of service that are tailored to each customer's specific and unique needs. The subscription model is ultimately powered by digital technologies that tether the right processes to the right roles in the organization. Here are three pillars of success in the subscription economy: 1. Building recurring relationships: The shift to subscription model necessitates focus on building recurring relationships with the customer. This entails a commitment to the customer's needs from the offering, and ease of service, onboarding, billing, and invoicing. Therefore, immaculate attention must be paid to the entire customer life cycle, inclusive of the off-boarding stage. To make the customers commit to a subscription, businesses must proactively help the customers extract their intended value. As a result, businesses must handle customer loyalty, pricing, and selling differently. 2. Technology as an enabler: Unifying front and back offices to fuel a seamless customer

experience, the subscription model must eliminate the silos that demarcate billing, sales, service, and product teams. The front office and back office must stand integrated, and end-to-end processes must be deployed, owned by cross-functional teams. This task is shouldered by cutting-edge platforms from providers like Oracle, which direct teams along the right process vectors, and unify functions by paving the way for seamless collaboration across the organization. The quote-to-cash cycle must be integrated within a single platform, and cross-selling, upselling, and contract renewals must be augmented with a technological core that automates routines and integrates with the ERP and CRM to build a comprehensive, real-time view of the business. 3. Powering personalization with insights: Lastly, subscription models thrive on taking care of each customer as if they were the only priority for the business. In this era of hyper-personalization, customer-centricity bears great relevance to subscription models. Macro-segmentation must be replaced by micro-segmentation with a 360-degree view of customers. Therefore, the right technologies must be leveraged to fuel actions like upselling and cross-selling, and customer data platforms must empower customer success and support teams as they work to boost the experience across every single account. This is made possible by integrating various platforms and the underlying business data lakes and analyzing them to decode every digital footprint of the customer – which enables subscription businesses to maintain high retention rates. Final words Subscription businesses are powered by people and lead to business interactions to serve customers. But after the pandemic, top subscription businesses have shifted their focus on automating service routines and making experiences touchless and intuitive. New entrants must look up to such a target state, where product innovation fuels competitiveness in the market, and a thorough reinvention of processes powered by the right technologies enable small teams to run day-to-day operations smoothly. The opportunities are boundless – now is the time for companies to future-proof themselves by switching to a subscription model and unlocking their growth potential in today's markets. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 Banking Frauds: Are We Ready?

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are catching up with the evolution of technology, trying to find loopholes in the system and the ways to exploit them. Identity theft and account take overs have become primary concerns for FIs given the incidents are on the rise during the current non-face-to-face banking environment. The handheld devices, considered to be the convenient banking channel, might become an open book of financial secrets when lost or hacked. The browser on handheld mobile devices stores personal identifiable information (PII) like full name and aliases used, address, email id, passwords, cards numbers, national identifier like SSN, browser history, cookies, cache. The device storage might also contain downloaded bank statements, contacts, device location history (GPS), SMS, emails and recently deleted files. When one falls prey to scams, the scammers or hackers can swindle the accounts without the knowledge of the victims in time to circumvent the fraud detection parameter deployed by their FI. Device fingerprinting and network IP tracking by the fraud monitoring systems are fooled by the scammers using victim's own device connected to victim's own network to siphon their money from their accounts. Countering the Risk There is need for a concerted effort from both the customers and the FIs in the digital banking space to counter these risks. First and foremost, the onus of preventing fraud lies with the customer, which can be ensured by adopting some best practices to seal data leakage and awareness on the ways to evade scams. They should be advised to protect the digital banking device from hacking through phishing or SMS-shing to validate the authenticity of the links received in the SMS or emails before opening, not to use non-secure internet connectivity for banking transactions, use of multifactor authentication for mobile banking apps like a password, biometric or PIN to access and install only genuine banking apps from reliable sources and authenticated banking websites. On the other hand, the FIs need to step up their digital security and fraud prevention strategies to meet the ever-evolving fraud trends in the digital environment. The first step in controlling fraud attempts by the FIs should be to educate their customers on the scams and trends of fraud in the market at regular intervals. In addition, FIs need to implement machine learning-driven analytical solutions to minimize the false alerts, which might impact customer experience through multiple customer-connects and decline of genuine transactions, etc. The Road Ahead Going forward the FIs can deploy linkage analysis combined with social media activity analysis to identify the fraud trends. This will indirectly reduce the friction in customer experience by bringing down the unwarranted connect for transaction authenticity. Cognitive solutions like automated communication with the customer through auto dialer, push message or SMS could be the alternative choice for customer connect. Additionally, internal audit conducted at regular intervals will help test the effectiveness of controls deployed in stepping up cyber security to protect customer data from hackers and data breaches. Realtime monitoring and quicker turnaround in validating the anomaly with the customer will help minimize the risk of multiple fraud attempts. While this isn't an exhaustive list of actions to counter financial crime, this is an evolving space and the FIs need to track the developments in the area to update customers knowledge, processes and controls accordingly. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Register for our email

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Climate Glazed Financial Statements: Road to Transparent Reporting

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a risk factor for the financial performance of a firm. The unmissable climate crisis has manifested in a very real risk to all walks of life globally and institutions are not insulated from it. The risks from climate change have a bearing on institutional and financial stability and the November 2020 publication by the International Accounting Standards Board (IASB) has reinforced the climate imperatives. Financial Reporting: Evaluation and Evolution For the banking industry, managing as well as clearly reporting climate risks to the overall system is crucial to ensure transparency and avoid any significant reputational risks for the shareholders and the larger financial markets. The well-pronounced observations from central banks, regulators, IASB etc. should ensure a sharper focus from the banking industry to address the situation. Apart from IASB, select regulators in jurisdictions like the UK have been vociferous about climate considerations in financial reporting. International accounting standards IFRS/IASB have also been updated to include climate related risk. For instance, as part of IFRS9, the banks need to consider financial risk and related climate change reporting impacting their loan portfolio. This is essential to outline the potential impact on loan servicing, adherence to covenants, and stressed collateral valuations. With adverse climate impact, mortgage insurance premiums may skyrocket (owing to instances of repeated climate catastrophes) consequently insurance providers would have to factor and cover for elevated liability costs. While IFRS7 prescribes banks disclose risks within their instruments and exposures, as well as their climate change risk disclosure with the related concentration (credit, market, other risks). As banks graduate to fully incorporate climate factors in their financial statement reporting, here are some steps to consider: 1. Look Inward for Data Centricity   2. Stress Tests, Scenario Analysis: Banks must also include climate-related risk consideration (including managing climate risk in the financial system) as part of their enterprise risk management framework. Additionally, they need detailed mitigation plans, along with conducting stress testing, AI based modeling with scenario analysis incorporating baseline, adverse and outlier scenarios matched to confidence intervals. 3. Using KPIs and Metrics: By mirroring climate related financial disclosures, banks can build organization-wide metrics, KPIs and analytics. It can then cascade to individual business units and divisions. Enabling tools from forums like Science Based Targets initiative (SBTi) and Partnership for Carbon Accounting Financials (PCAF) can also be reviewed.   Conclusion The banks can institutionalize climate related financial statement disclosures by evaluating the data and business and subsequently determine what suits them best. They can also empanel select climate change and financial risk reporting use-cases to perform PoCs in order to ascertain what works best for the organization. Post that banks will need to document and institutionalize the lessons learned, which can then form the basis for a strategic enterprise wide implementation. Going forward climate aligned financial reporting, may become more vociferous and pronounced, both from regulators and the executive branch of the government as investors, deposit holders, loan seekers demand to know how their financial wealth aids/ impedes climate goals (GenZ customers included). In summation, climate change and financial risk constitute two sides of the same coin, and banks must prepare to align with self-initiated climate glazed financial reporting. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS

Industry Cybersecurity: The new frontier in the digital age 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 =====================

Execution of Banking Operation Set to Witness a Paradigm Shift

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transformation, and disaster recovery have helped the banking sector in withstanding the disruptions with relative ease. And all this was done with more than 90% of the staff working remotely and an even higher percentage of customers availing banking services digitally. Although the majority of staff were working from home, banks witnessed a significant increase in productivity. This new technology-enabled remote working model is all set to become mainstream. In general, remote working benefits everyone as banks can reduce employee expenses, staff can cut down on commuting times, and the environment benefits from a reduction in carbon footprint. Inferences from either side of the Atlantic Banks across Europe and America have arrived at different conclusions from this forced experiment. Let's look at some inferences drawn from the public statements made by some of the big banks from both sides of the Atlantic. European banks, including some of the major Dutch, German, and British institutions, are redesigning their workplaces to facilitate the remote working trend. The pandemic has shown that many roles can be undertaken effectively outside of branches and offices with significantly higher productivity. These factors are influencing their actions to reduce the branch footprint and repurpose some of their offices into collaborative spaces. Such collaborative spaces will support the social needs of the staff and nurture creativity through in-person collaboration and teamwork. Meanwhile, major American banks think that the current work-from-home arrangement is just a passing anomaly that they intend to fix soon. They are of the opinion that remote work does not suit the innovative, collaborative apprenticeship culture of their organizations. Leading American bankers worry that work from home could have a negative effect on employees, slow down their decision-making process, and hinder overall creativity. They only expect a small fraction of their staff to work remotely in the long run and intend to create flexibility by allowing staff to work remotely for few days (2–3) a week. When it comes to environmental sustainability commitments, European banks have taken a huge lead over their American counterparts. Their experiences from the pandemic and commitments to sustainability are likely to influence European banks towards hybrid and remote models compared to their American peers. Tools, technologies, and proclivity for remote work The tools required to telecommute effectively are already available and evolving quickly to address individual and enterprise needs. This is also witnessed in the number of Intellectual Property filings for remote work in the recent past. Google's 'Speech Recognition and Summarization' and Cisco's 'Defining Content of Interest for Video Conference Endpoints with Multiple Pieces of Content' are examples worth noticing. These new tools will contribute significantly to improvements in the quality and the value of work delivered by remote workers. Employees in the developed world are showing a preference for remote work. It has also been observed that remote work improves the quality and quantity of employee innovation. In addition, remote work options will enable banks to source highly skilled talent from across the world, not just for their technology needs but also for their core operations. Hybrid and remote work models will define the future of banking Today, banks have access to technology and processes and a need for skilled talent that can help them reap the benefits of remote and hybrid work models. That said, they should make an objective evaluation of each role before categorizing it into any of the work models and deploying it in their hiring processes. Current research indicates that the risk of not doing

this right will be huge for the banks. Apart from the risk of losing talent – both existing and new – banks can also miss the opportunity of cost saving. A recent KPMG study estimates that a hybrid working model can result in annual cost savings of $10,000 per employee. While banks can benefit from reduced real estate costs, higher employee productivity, and lower employee costs, employees will benefit from the reduced commute times and savings on commuting expenses. This will not only improve productivity but will allow them to maintain a better work-life balance. Deploying the right mode, with a clever mix of hybrid and remote options, will prove to be a win-win situation for both banks and their employees. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

The COVID-19 Vaccine Supply Chain: A Process Industry Perspective

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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. Rahul Mylapally Prudhvi Kumar V You have these already downloaded We have sent you a copy of the report to your email again. As the world reels under the pandemic-induced crisis, the COVID-19 vaccine has been the topic of discussion globally. According to The Wall Street Journal, more than 150 vaccines have been developed by the end of 2020. With vaccine rollouts already underway, many countries are adopting a phased approach to vaccinating their citizens. While making vaccines available for over seven billion people globally is a gargantuan task, the complexity involved in setting up the supply chain is equally daunting. The process industry plays a key role in ensuring the availability of vaccines – from the right polymer materials for filters to the bioreactor bags for virus cultivation and the specialized vials and syringes required to maintain the stability and efficacy of the vaccine in various environments. Global demand for COVID-19 vaccination products According to a report by Business Today, 8 to 10 billion syringes are required to vaccinate the global population with a single dose, excluding booster shots. While the typical demand of syringes is close to 16 billion, only 5 to 10% (about one billion on average) are used for vaccines and immunization campaigns. Additionally, there would be an estimated requirement of about three billion vials for storing and transporting the vaccine for the global population, the report stated. This sudden spike in demand for syringes creates several challenges: for instance, in the raw materials supply chain, recycling is difficult for most critical ingredients due to safety considerations. As a secondary impact, we envisage a shortage of similar materials used in other industrial applications in sectors already operating at high capacity utilization rates. For example, polypropylene (PP) is the main raw material used to make disposable plastic syringes and also the bioreactor bag for vaccine production. Any shortages in polypropylene production will hamper the COVID-19 vaccine supply chain. Because of its growing demand, the global capacity of PP is projected to increase from 199 million metric tons (MMT) in 2020 to 230 MMT by 2023, at a compounded annual growth rate (CAGR) of 4.9%, according to Statista. Even then, it is not sufficient to meet the rise in demand for both traditional industries and the new demand for the COVID-19 vaccine supply chain. Vaccine production and delivery requirements According to this news report, a vaccine manufacturing plant uses about 9,000 materials sourced from suppliers spread across 25 to 30 countries. The manufacturers developing and producing the vaccine must comply with strict regulatory standards – local, federal, and other governing authorities. Let's explore the finer details of what vaccine development and distribution entails. Making a vaccine requires bioreactor bags, filters, and a host of other materials. A bioreactor bag is used for cultivating the viruses needed for the vaccine. It is manufactured using chemicals like polyethylene, polyvinyl acetate, and polypropylene. Filters are used to clarify, purify, and sterilize the vaccine after the virus is cultivated. These are manufactured using polymers like polyethylene and nylon. Any shortage

or unavailability of these process industry chemicals can seriously impact the efforts of vaccinating the global population at the earliest. The delivery and inoculation of vaccine requires syringes, glass vials and stoppers. This, along with the cold chain requirements, can pose significant challenges for both demand and logistics. A key issue that may arise is the availability of lower dead volume syringes to inject the vaccine. Polypropylene and ethylene oxide are the major materials used to manufacture the vials and syringes. With each vial carrying six to seven doses of the vaccine, lower dead volume syringes play a crucial role during delivery, as they can reduce wastage by 16% (seven doses per vial instead of six). To prevent the virus from spreading further across a larger population, governments, organizations, and other stakeholder must meet the increased demand for vaccines as quickly as possible. Raw materials providers, component manufacturers, and vaccine-producing pharmaceutical companies need to cooperate to allocate greater capacity to manufacture these materials, reposition inventory to match downstream production needs, and perform other essential tasks. Final thoughts All vaccines provide effective protection for a fixed duration, and booster shots at a regular frequency may be required for continued protection. The process and chemical industry organizations that supply these materials should be prepared for a global demand spike. The challenges around procuring the required raw materials, planning the capacity, and managing the outbound logistics can be addressed through cross-functional collaboration within the company and across the value chain. Additionally, organizations should monitor vaccine-related developments regularly, to manage the demand variations of these materials and build a responsive supply chain. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ====================

Building Clean Code for Sustainable Banking

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power predictor engine could help with rigor in volume and variance in data and train the algorithm in determining if the app is green. It is a long shot, but it is worth the effort. What's next? Once the energy consumption of the application is measured, the question of how the metrics help in making an application green arises. Several complex factors like architectural design, coding pattern, nature of the application decide the energy consumption pattern. Hence, establishing green coding rules with non-arbitrary standardizations can help in determining if the code is green. The next question that arises is how we institutionalize them. Bringing green into the code's DNA A rule engine can be designed with a set of Green IT rules for coding and integrated into the 'Mission Green App' process. This can be done in multiple levels: Level 1 – crude physical discipline in coding Level 2 – building energy sensors to detect energy leaks Level 3 – adapting applications to set energy profiles Levels 2 and 3 can happen only after due research. While green architectural and design principles can be administered as an assessment tool for scoring the purpose, quick energy predictors can help in measuring the carbon footprint of
software applications – ex-ante and ex-post of the trials. Each application should be subjected to the 'Mission Green App' process, where the first step is measuring the energy consumption to set the baseline. The application is then run through the energy rule engine to identify energy leaks. Post identification, the application is remedied for the energy leaks. The assessment scores of the application serve as a guide for the design and architectural energy maturity. Once the remedy is implemented, energy consumption is measured to check the savings and a new baseline comes into force. Is green code the panacea for all ills? The primary purpose of a software application is to meet business and customer needs and drive efficiency. But what do you do when green code is not an efficient code? It is a tradeoff, and a referral matrix must be drawn that assigns priority to business and customer needs, efficiency, and energy savings for the different types of applications, with respective target energy profiles and energy budgets. This may not be a one-time truth but will vary over time and space. Further, it should be decided upon after collaborating with clients and application users for their buy-in. Energy savings can also be extended to the different stages of the Software Development Life Cycle. Several automations, time-based budgeting, and reuse can bring down the lifecycle cost of creating an application. In addition, the configurations, or the cover in deployment, play a major role in energy consumption. Huge capacities configured for small applications consume idle energy even when the application is down. In the end, a real, clean green application is a judicious mix of content, creation, and cover. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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The Five Design Thinking Elements for the Digital Customer Experience

What is the hallmark of a successful company? The ones laser focused on the customer experience (CX). When you look at Apple and Amazon, these brands have set new benchmarks for the digital customer experience and act as the baseline for consumer expectation in their industry category and beyond. These companies demonstrate that a well-calibrated, orchestrated, integrated and contextualized CX strategy can give businesses the power to create a positive impact on consumers and create avenues for a differentiated proposition. In fact, the 2021 TCS Global Leadership Study shows that Leaders as identified in the survey ranked customer centricity as one of the most valued cultural traits. The question is: where is the starting point of building a superior online CX? It all begins with an empathy-driven, customer-centric culture. Digital CX: The design-thinking approach Digital CX is clearly one of the most critical components for delivering a highly superior customer experience and increased

organizational customer centricity. The challenge is that digital CX transformations are often complex, with multiple dimensions to consider, all of which are needed to drive better outcomes. Such initiatives require careful planning and a robust roadmap for the right execution. Given the high complexities involved in such transformations, following a design thinking-led approach that puts customers' unique needs, pain points, and journeys at the forefront of such transformation initiatives, is a key ingredient for success. An approach based on design thinking can be used across the entirety of a digital CX transformation and help maximize the impact of each component that is key to the transformation. It can help enterprise leadership answer questions around where to start and how to manage digital CX transformation projects. Here are some considerations: Using a design thinking strategy for CX enables you to monitor, analyze and track behaviors to deliver unique and valuable interactions to prospects and customers. Without customizing the experience, it's a missed opportunity to build customer loyalty. However, findings from the 2019 TCS CMO Study uncovered that only 4% of companies (out of the 500+ surveyed) are personalizing all stages of the customer journey. Case Studies: Successful design thinking CX scenarios A leading UK utility provider leveraged artificial intelligence and analytics in its customer operations to predict the probability of potential escalation of complaints by identifying customers who have a high propensity to contact the energy regulator. The provider used pattern detection techniques to uncover patterns, trends, and correlations in data that human analysts were likely to overlook. The techniques provided greater insights into unstructured data and found anomalies or changing patterns to mitigate risks or identify new growth/improvement opportunities. Similarly, a leading Australian telecom operator faced the challenge of sustaining CX despite a forecast for substantial volumes escalation, a highly complex and people-intensive operating environment, fragmented customer connection experience, and repetitive, non-value-add activities. The enterprise engaged in a design thinking approach to completely redesign its order to activate service experience to meet CX expectations and minimize cost. The telecom operator was able to realize digital CX transformation by leveraging automation, process redesigning, channel optimization, AI, and analytics to drive proactive customer management. Redesigned services that created integrated and automated operations and adopted measures like prescriptive workflow, customer-journey centric NBA (next best action), and predictive fallout management eventually helped the operator improve CX significantly with a 40% reduction in the cost to deliver. 5 essential design thinking elements for digital CX To implement design thinking in the digital CX transformation journey, keep the following key elements in mind: 1. Empathize: Gain a deep understanding of customer perspective/pain points and the issues involved. 2. Define: Identify and define the core problems that need to be solved through digital CX and set clear objectives. 3. Ideate: Brainstorm ideas to solve potential problems while maintaining a human-centric approach, thus enabling the discovery of disruptive pathways when designing customer journeys. 4. Prototype: Identify the most suitable solutions to solve current challenges by building numerous solutions and test them internally in a controlled environment. 5. Test: Release the polished prototypes to a broader group of users to collect their feedback and capture critical information needed to revisit previous stages in the process. Digital

customer experience will be a key enterprise priority in the foreseeable future. Enterprises need to invest in digital CX capabilities that go beyond leveraging digital channels and incorporate an environment where various digital solutions work in harmony to create a superior, customized experience. A design thinking-led approach to digital CX transformation gives organizations a potent tool to make the entire customer journey smoother, more delightful and ultimately more impactful to the bottom line. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 Digitally Savvy CFOs are Helping CEOs Navigate the Storm

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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. Blog V Ramakrishnan You have these already downloaded We have sent you a copy of the report to your email again. Economic crises are always challenging times for CFOs. Risks intensify amid revenue and margin pressures. The year-long global pandemic is no exception. It is in times like these that a digitally savvy chief financial officer can be the chief executive's key ally in steering a large company through the storm. Exactly what that partnership-in-crisis could and should look like is the topic of my new article in TCS' most recent edition of Perspectives. I examine five ways in which CFOs whom I know have stepped up to the plate: monitoring external business risks (for example, litigation); reassuring talent that the ship is steady; re-examining growth initiatives; making forecasts more accurate; and spotting attractive acquisitions. CFOs can also play a more effective role by making their own function more digital. In my article, I describe how TCS has built an integrated, enterprise-wide, single-instance financial accounting and reporting system. It has enabled us to rapidly spot marketplace and internal issues, often with microscopic granularity, and provide information so that our leaders can make key decisions quickly. One example (you'll learn more about in the article): Within weeks of the pandemic's initial shock of confinement, our financial system allowed us to gather results from the 50-plus countries where we operate and report earnings on time. I also share four key lessons we have learned in building a powerful digital finance function. They touch upon the breadth of the finance value chain, the availability of key performance data, the importance of non-financial metrics such as customer satisfaction, and embedding finance professionals in business units. You can read much more about this in the latest edition of TCS's management journal, Perspectives. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Today's Digital Imperatives Demand C-Suite Reinvention

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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. Ananth Krishnan Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Blog Ananth Krishnan You have these already downloaded We have sent you a copy of the report to your email again. The COVID-19 pandemic has accelerated a trend that began decades ago in some large companies: using digital technology to reshape the ways they invent, produce, distribute, market, sell, support, , hire, manage, and conduct business. Such changes have also forced these companies to create new jobs at the top. As I explain in my latest article in TCS Perspectives, it's a veritable reinvention of the C-suite. For many, these new roles couldn't come too soon. A TCS 2020 survey of 287 executives at global companies found only about a quarter had key digital capabilities. Only one in four could offer customers an end-to-end digital customer experience. Less than a quarter had highly automated core business processes, and just 21% had struck key digital ecosystem partnerships. It could very well be that these mandates have fallen between the cracks of traditional C-suite roles, and that making them happen requires relentless focus and accountability. The way some companies have dealt with that is by creating new roles, as I explain in the article. Forward-thinking companies have a history of adjusting the roles their C-suite executives play to respond to business imperatives. In the article, I point out several new roles that large companies have created over the last decade – including chief experience officer (USAA), chief technology and risk officer (Humana), chief transformation officer (United Parcel Service), and chief customer and employee experience officer (Adobe) – that have made a big difference. I discuss what the people in these roles have helped their organizations accomplish. (By the way, one of these executives became his company's CEO). I also discuss three relatively uncommon roles that I believe every company will need in their C-suite this decade, and why: chief talent experience officer, chief reskilling officer, and chief wellness officer. Many firms have adapted their business operations to the COVID-19

pandemic. Now is the time for leaders to assess the new C-suite roles their companies may need, to accelerate growth and manage risk. I invite you to read my article "Today's Digital Imperatives Demand C-Suite Reinvention" and ponder whether your organization may need some C-suite renovation too. And it will be good to know your views on the subject too! The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =======================

Application Refactoring – A Viable Choice for Legacy Application Modernization

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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. Divya Venugopal You have these already downloaded We have sent you a copy of the report to your email again. Enterprise operations are undergoing major transformations to cater to the latest customer requirements. In this evolving scenario, 75% enterprises are keen to migrate their applications to cloud as a part of their digital transformation journeys. Typically, applications in large enterprises can be classified into: 1. Legacy applications that run on mainframe environments 2. Custom-built distributed applications that use .NET and Java 3. Web applications that use Java 4. Packaged applications that run on various platforms The composition of these applications varies according to the industry to which the enterprise belongs, and the age and history of transformation initiatives executed till date in the enterprise. An application can also span across multiple categories. For example, a relatively large number of banking and financial enterprises have large batch-processing components in mainframe, while the front-end applications are built on web technology and application programming interfaces (APIs). Depending on the technologies involved, moving to cloud can either be an extremely simple no-touch, lift and shift process of cloud-ready applications, or a complex re-architecting of large legacy applications to cloud-supported technologies. Business decision makers aiming for application modernization should note that only a few applications belong to either of these extremes. Most applications, written in modern technologies like Java and .NET, can be made suitable for cloud deployment by incorporating some changes. However, the task of making these applications cloud-ready turns out to be error-prone and effort-intensive due to the volume of changes pertaining to each component, and the large number of applications involved. Refactoring involves restructuring the existing application with small changes while preserving its structure. The following changes need to be considered during refactoring: 1. Verifying and migrating the identified components, creating a build-ready and cloud-aware code, modifying the application code and configuration files to suit the target cloud environment, so that the benefits of cloud technologies can be harnessed effectively. 2. Upgrading the technology for programming language, middleware, database, and framework for aligning them with the application stack offered by the cloud vendor. For example, replacing the deprecated methods, annotations, libraries or keywords. 3. Modifying infrastructure dependencies, hard-coded topologies and configuration changes in the source application to ensure that they are compatible with the desired target environment. For example, the IP address will have to be changed after moving to cloud, since a new IP/ URI and MAC address will emerge. Challenges in Implementing Application Refactoring Reviewing and identifying changes in a large volume of files across all the applications of an enterprise while ensuring remediation of code and consistency of change, is a tiresome and complex process. Manual interventions during code changes lead to considerable effort being spent on rectifying mistakes, rework, and manual check-out, modification and check-in cycles within version control systems. The diversity of the target technology stack only adds to the complexity of this task. It requires varying changes to be made in the same application source code, so that different combinations of the target technology stack can be supported. This requires the highest level of automation, target technology expertise and experience.

Hence, technology upgrade with refactoring requires a product-based approach with a comprehensive understanding of the technical dependencies to meet end-user demands and speed up time to market. Solutions Approach The successful implementation of application refactoring can be achieved when enterprises find the right approach to facilitate highly automated solutions. The changes done to the existing code might have an impact on application functionality. This necessitates the involvement of the Quality Assurance team as an integral part of the refactoring process to minimize the overall cost and risks. The Solutions approach must also be used in combination with the right deployment team and tacit knowledge gained from each conversion engagement. An ideal product for refactoring should enable: 1. Planning the migration path with insights that capture the underlying complexity 2. Implementing rapid changes through impact analysis and remediation 3. Viewing the impact before the actual change is executed, and ensuring SME reviews to reduce manual intervention by developers later 4. Re-using and leveraging best practices to avoid repetitive errors 5. Making changes across different source code component types for different migration paths A product-based approach aids in identifying impacted areas and remediates transformation in a highly automated and systematic way. Simultaneously, every deployment instance enhances the product's knowledge repository as well as enables it to apply previous experiences for faster modernization implementations in the future. Write to us at mastercraft.sales@tcs.com to start your application modernization journey. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

DevSecOps: Securing the Development Pipeline

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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. Blog Somen Das You have these already downloaded We have sent you a copy of the report to your email again. Securing the enterprise IT landscape has become a priority for most large companies; for the chief security officer, it has become critical to build in security features in software and applications. This is where DevSecOps comes in. Secure DevOps adoption needs multiple security controls to be embedded in the DevOps pipeline, along with other processes. There are five key things to keep in mind to retain enterprise agility while choosing and integrating security controls into the DevOps process: 1. Dynamic assessment control for applications and hosts Automated triggering of dynamic assessment is simple to implement and is much better than manual testing of projects at random intervals. Dynamic application security testing (DAST) and vulnerability assessment (VA) of hosts can identify low-hanging vulnerabilities (such as configuration and authentication issues) before the application is released to production. Dynamic scanning helps developers realize which 'real-world' risk a vulnerability poses. Most vulnerabilities stem from security misconfiguration. This means that automating the process by integrating DAST and VA scanners will reduce the risk by identifying more vulnerabilities and ensure prompt redressal. DAST and VA scanners are the simplest DevSecOps tools to integrate for maximum risk reduction with minimum effort. 2. Shifting left by bringing in DAST, component, and container-level security controls Integrating security early in the DevOps toolchain is critical for any organization looking to build a robust and secure modern application. The earlier the integration, the more time teams get to fix any significant security weaknesses (be it code or design or operations). The first step in this direction is to get the security, development, and DevOps teams to decide on which tool to integrate, where to integrate it, and how to react to resulting vulnerabilities. Moreover, most modern security controls support automation and deliver results faster, eliminating wait times involved in manual testing. 3. Select the best security tools for DevSecOps While it is true that enterprises that select the best security and DevSecOps tools get the best outcomes, most make the mistake of thinking that choosing highly rated security tools will get them the best results.

What's important is to focus on selecting the tools that best suit the organization's technical landscape. This means: 4. Agile DevSecOps / security tool set The best security tools today may not be the best in the future, so it is important for organizations to be clued into the evolving security landscape. This is critical because switching security partners is easier said than done. Without skilled subject matter experts, migrating from one security tool to another is complex. That's why a dependable security partner and automation of the security tool integration process into DevOps pipeline are important. After all, some things are best left to the machines. 5. Adopting DevSecOps automation and orchestration Enterprises can look at automating the manual and time-consuming tasks of assembling security tools in the DevOps tool chain and centralizing vulnerabilities that are normally scattered across various interfaces and reports. In order to incorporate security tools from multiple vendors within a DevSecOps workflow, enterprises shall look at tools that are already having the in-built security orchestration engine to ensure continuous assurance, from detection to tracking to rectification. Organizations can create or invest in DevSecOps automation wireframes or platforms that allow simpler integration capabilities with existing and new security tools. This will allow them to move in and out of any tool in the future while preventing the loss of historical data that is crucial to see how the security posture has evolved. Securing the DevOps journey There are numerous benefits of securing the DevOps pipeline. They include: Analysis from trends show that a strategic shift in securing the DevOps pipeline will soon have a broader industry impact. Technologies and services associated with these trends have also started to mature, offering capabilities to secure digital businesses. Enterprise leaders, especially those managing security and risk, must become early adopters by securing their DevOps journey. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Effective Decision-making with HCM Transactional Dashboards

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organization by embedding visual dashboards for all important transactions with role-based access to important metrics across crucial HR functions. The end-users do not have to go through structured historical data from multiple sources manually to arrive at an informed decision for a particular transaction. The embedded dashboards provide ready- to-use, real-time business decision-making capabilities to end-users to make it easier for them. The unique visualization feature coupled with robust open source technology and home-built, real-time dynamic token-based security protocol provides lightweight, highly secure, and cost-effective transactional dashboards. The transactional dashboards cover the following HR functions: People Management: Stakeholders can view and analyse the trends of voluntary separation, and the reasons across periods while they process separation applications, by providing them with better insights into attrition in the organization. Leave and Attendance Management: Managers can gain insights into the leave trends of an employee along with the state of absenteeism in their team while approving the employee's leave request for a given period. Performance Management: Managers can view the competency and skillset gap of their employees while appraising their performance for a given period, thereby enabling them to take sound decisions regarding performance management of their teams. Learning Management: Before deciding to enrol for a course or training, employees can understand its relevance and popularity trends using transactional dashboards. Thus, the end-users can benefit from the HR transactional dashboards in the following ways: Effective decision-making for HR transactions on a near-real-time basis by means of visual insights on the intended transactional page Savings in business hours and manual effort instead of having to review several online/offline reports to make a transactional decision, thus enhancing business productivity Cost-effective analytics solution with robust architecture and extreme ease of integration into any HCM application Innovative data security framework for providing right information to the right user Unified data integration and visualization platform across the HCM application Conclusion HR dashboards and visual reporting are usually the first steps in moving towards HR analytics, which is vital to an organization. To efficiently manage human resource management issues, it is essential for the management to adopt HR analytics and reporting, preferably even for everyday transactions, to take right decisions at the right time. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Powering Frontline Workers with Real-time Connect

Hybrid work – that is the next disruption enterprises are embracing after remote-only work setups. While they are designing robust strategies for hybrid work models, the need of the hour is to put easy-to-use technology in the hands of frontline workers, an integral part of organizations across industries. According to the Harvard Business Review Analytics Services study, 78% of executives believe that, in order to be successful, their organizations must connect and empower their frontline workers with technology and information. For example, if frontline workers can log incidents with real-time photographs, asset details and live location on chat-based mobile workspace solutions such as Microsoft Teams from the factory floor, it will help improve their productivity immensely. This is especially true in the utilities industry where frontline workers interact and operate in hazardous environment, a mobile-first field service solution like TCS Industrial Connect that accelerates field force digitalization on instant chat, can enable them to perform their daily operational tasks safely and

efficiently. Such a solution should deliver contextual data of various business processes through customized channels, which can be accessed on a mobile app. For example, the solution should be able to: • Identify safety hotspots • Monitor asset health and get alerts in case of discrepancies • Digitalize field inspection reducing the turnaround time for necessary actions • Make available SOPs on mobile for easy reference, auto-generate • Share various reports in a paperless manner, reducing the margin of error These in turn ensure higher compliance and prevent safety incidents in factory environment besides improving the productivity of frontline workers. By contextualizing the right use cases relevant in other industries, such a field force digitalization solution can empower frontline workers. For example, in manufacturing industry, it can be leveraged for shop-floor workers to inspect different machines and get remote expert opinion by using native features of workplace solutions such as Microsoft Teams to decide on the health of those assets and schedule maintenance or order replacement spare parts as required in real-time to avoid any equipment outage. As companies respond to the pandemic with digital workplace initiatives to transform their work and provide a safe operating environment for their frontline workers, solutions such as TCS Industrial Connect can help them by providing a simple, light-weight and easy-to-use digital solution on their mobile devices. TCS Industrial Connect takes digital transformation to the field by addressing the requirements of the industrial worker and offering a comprehensive and scalable ecosystem to deliver end-to-end solutions for real-world use cases in health and safety, accelerated in-field decision making, first-time right quality, operational efficiency, productivity improvement up to 30% and skill enhancement. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Application of Operations Research Techniques in Human Resource Management

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resource, capital, or devices) can be most optimally assigned to departments, jobs, or cost centers for a process to maximize revenues or minimize resource utilization. For example, consider a case wherein five jobs are to be distributed among five workers, based on the time taken by each worker to finish a particular job. In such scenarios, assignment problem is suitable for to minimize the total task time. Linear Programming: This technique optimizes a linear target function, which could be profit or cost, subject to different constraints namely labor, material, time, money etc to give an optimal mix of a solution. Consider a situation in a company XYZ where the HR must choose the optimal number of employees in two departments to maximize the productivity of each department. But they have constraints like salary budget, workhours, training budget and system availability. Linear programming will be suitable in this scenario, or even for problems such as labor scheduling. Queuing Theory: It is a mathematical analysis of every components of a queue or a pipeline, inclusive of number of servers, customers, systems, arrival time, service time and the relevant processes. Queuing theory can improve ticketing/customer service time and workforce allocation by understanding the behavior of the complaint/ticket arrival and servicing process through simulation using the past data, thereby analyzing the arrival and service time to shorten the queue length (number of tickets per employee) to determine the required number of server employees, and eventually solving the SLA achievement issue, while simultaneously tackling goal setting aspects of minimum service per day per employee, and under/over utilization of human resources. Goal Programming: This technique utilizes linear optimization for situations wherein multiple goals are involved. Its primary goal is to reduce the opportunity cost of not achieving a non-prioritized goal over an important goal. An application of it could be in workforce planning to find the optimal number of hires, considering several goals like productivity maximization and hiring and training budget, each having its own unique importance. Simulation: It is a probabilistic technique wherein we mathematically model a real-life situation and run the outcomes of that situation on time- or event-based triggers. Every task in a situation happens according to its probability of occurrence, and its occurrence may trigger the happening of other events based on their probability from the past data. Simulation can be used to model any process in HR, or any other domain, like establishing a recruitment pipeline by modeling the entire lifecycle of an employee from recruitment till separation, while considering hiring rate, attrition rate and other important factors. Conclusion: Operations Research and Human Resource Management may be different fields running parallelly to each other, but their amalgamation can bring about great results in the scope of decision making for organization leaders with respect to managing their workforce efficiently. Optimization gives them the right sense of direction to allocate resources in the right area, based on a mathematically determined criterion than any random, manual method. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

Accelerating Cloud Migration with Automation & Innovation

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infrastructure, and then moving the applications to cloud through the lift-and-shift approach. But other IT functions that manage these applications will also have competing priorities, such as modernization, which take time or offset with some other business priorities that may slow down the progress around migration. In addition, companies are adopting multi cloud strategy, the process of determining the affinity of the app(s) to which cloud is not well defined and this further delay the migration. 2. Lack of investments on Tools - Large enterprises started with migrating the low-hanging applications first with minimal investments in auto discovery, assessment, and migration, which has resulted in significant dependency on application teams. In cases where application teams are not available, the CMDBs were found out to be not fully updated and have had complex integrations. This further negatively impacts the cloud migration agility. 3. Classified Infrastructure - The lack of focus on the creation of landing zones capable of handling export control and high data classification application has resulted in parking these applications which have now become substantial in number. 4. Security Constraints - Security is essential. However, at times, rigid guidelines put tremendous pressure on teams, which make them not challenge the status quo and continue with the apps on the data centers, whereas they could come up with innovative ideas that can balance the risks by reducing the blast radius, or look out for options around database, integration, and tools for upgrading in an automatic manner to the latest versions. 5. Support Teams and Limited Use of Applications - Ideally, the support teams are best suited to migrate the apps to cloud. However, many of the apps they support in their inventory sometimes have almost minimal tickets, and/or they have no knowledge of the application due to limited usage, that can hamper the migration process. How do we address the constraints listed above? 1. Common Strategy - Global CIOs must set forward cloud-first strategy with a common priorities in terms of moving to cloud - that is migrate first and then modernize or vice versa, in some cases, decide on the date of pulling off complete data center and work backwards to put a plan on moving the applications to cloud, and establish a common framework for determining the landing zone in case of multi-cloud. This will enable the teams to have clarity and prepare a joint plan to prevent any redundant effort. 2. Gamification - Gamification should be leveraged to drive competitive spirit among the application team, especially the app owners. Gamification will leverage the reward point dashboards by department, CIOs, Apps owners, infra teams etc. that actively participate in migration. Employees are rewarded with points or incentives based on their rate of migration. This ensures more engagement, creates a competitive yet collaborative team environment, and helps the workforce behave differently. 3. Tools - Invest in a tool that helps do auto discovery, assessment and in cases, even migration. This helps save substantial time and effort by making the process faster, and reduce dependency on application teams, especially for applications where limited knowledge exists. 4. Classified Landing Zones and Infrastructure - Automation team(s) should work on priority to create the landing zones for catering to apps with a higher classification, so the bulk in those areas are moved away to increase the speed and get reduce cost in a secured manner. 5. Greater Collaboration - Security, infrastructure and application teams should work closely and come up with innovative solutions for moving applications faster to cloud, especially when there are version issues around binaries used

around languages, apps, and web servers etc. For example, to reduce the blast radius. 6. Rationalize and Decommission – In many enterprises, we still have applications wherein it takes significant time to find out who the app owner is. An effort should be made to identify applications that are catering to a limited number of users and look out for aspects around rationalizing and decommissioning them. 7. Embed Infrastructure and Application Team(s) – Lines are getting blurred between infrastructure and application know-how. It is becoming important to set up joint teams for migration wherein there is a right mix of infrastructure and application know-how to do the discovery and design of cloud migration. 8. Drive Innovation – Keep the team motivated by encouraging their participation in doing focused ideation and hackathons where they look at a given problem and come up with innovative solutions that can address the problem as well as let the team learn new things. In summary, cloud migration is essential for all enterprises for cost optimization. However, it is important to bring in the measures outlined above, and in the right mix, to accelerate the migration process in an efficient manner to ensure that more applications are moved to cloud at a faster rate. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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Metrics-driven Data Privacy Program for Regulatory Compliance

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Blog Ashim Roy You have these already downloaded We have sent you a copy of the report to your email again. Establishing a robust citizen data protection framework has recently been the prime focus for several countries across the globe. Countries that have existing data protection laws are strengthening them, while those that do not are now working towards formulating new laws. This makes it imperative for organizations to comply with data privacy and data security requirements of the applicable data protection laws in their respective countries. For organizations with a global presence, data protection regulatory requirements become more demanding as multiple laws come into play. It is advisable for organizations to have a formal data privacy program as a part of their larger data protection regulatory compliance initiative. Such a program must be owned by a central role, such as chief privacy officer or data privacy officer, preferably reporting directly to the CEO. The broader vision and objective of this program is multifarious. Regulatory compliance is the primary objective as non-compliance attracts penalties and damage to reputation. Simultaneously, the program must also facilitate agility of business outcomes by removing data barriers and boosting the overall business growth for the organization by earning compliance-driven trust from consumers. The program must be governed efficiently, and the level of efficacy must be assessed using numbers and metrics to determine whether its key objectives are being fulfilled. Categories of Data Privacy Metrics Broadly, organizations can define data privacy program metrics across three categories aligned with business objectives, as outlined below: Regulatory Metrics: Organizations prioritize certain metrics for measurement and tracking, as they are related to direct requirements mandated by the applicable data protection law, or even industry-specific regulations. If such essential metrics are not maintained and governed, it could result in non-compliance and penalties. Some examples of such metrics are processing time for data-related requests made by citizens; maximum retention period for specific data sets and their timely deletion; threshold data size and time for permissible data privacy breach within which communication about the breach must be sent to regulatory bodies and/or citizens. Additionally, organizations can define their own internal compliance and tracking measures such as the number of sensitive data categories applicable in the context of their business, number of business units, business applications, and data stores within the scope of data privacy controls, percentage of such entities for which data privacy

controls have been implemented, performance scores for ongoing data privacy processes, and so on. Business Agility Metrics: Agility metrics can help an organization judge whether the program can result in faster business outcomes and shorter time-to-market. Organizations may want to measure the time taken for delivering enhancements to business applications, or fixing the issues reported by users, with the support of privacy-safe test data provisioning. Further, organizations may wish to track the timeliness for adopting regulatory changes and delivering privacy-safe data to intended stakeholders. It may seem that data privacy measures, being an additional aspect, would prolong the time of delivery. However, if the program is well-defined, governed, and executed, organizations should still be able to deliver the desired data within the defined timelines. Any observed deviation should act as an alert for making the program scalable. Business Growth Metrics: Ultimately, any business program, including data privacy, must facilitate business growth. However, the question arises if an observed growth of business can directly be associated to the adoption of data privacy controls. Determining this, indeed, is challenging because business growth is generally a result of a combination of multiple factors. Nevertheless, through right market messaging and consumer reach out programs, organizations can educate consumers subtly about their seriousness of ensuring privacy (and quality) of consumer data. This could help elevate consumer trust levels and result in further cross-selling or upselling. Further, consumer surveys can help the organization understand consumers' reaction to their data privacy measures. A before-after comparison of sales figures can indicate the contribution of data privacy measures, even when it is not the only factor for the increase in sales. Identifying the Right Approach for Effective Outcomes While organizations must mandatorily comply with data privacy requirements of data protection laws, they do acknowledge that data privacy goes beyond regulatory compliance to become a key differentiator. Hence, organizations should focus on specific objectives while devising and executing a data privacy program and assess its effectiveness with the help of concrete metrics. These numbers help data privacy owners, and the CEO, to recognize the gaps in processes, any instances of non-compliance, and take strategic measures to fix them. In addition, these numbers can help decision makers to optimize their investments in running such data privacy programs that can address both regulatory compliance requirements and the overall business objectives. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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Transformation to Power BI

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extract, transform, and load (ETL) tool is applied to the data warehouse to integrate and process data from disparate sources. Next, a blank project is created in SQL Server Data Tools (SSDT), and the data is imported from the data source to the SSAS tabular model to create a report on the Power BI desktop. Further, this report is published on the Power BI report server which provides visualization features and powerful analytics to an enterprise. Data Warehouse Data from various sources and stored in various databases cannot be used directly for visualization. Data warehouses are central repositories of consolidated data from multiple sources. To integrate and process the data from disparate sources, ETL (extract, load, transform) tools are used. In our project, we used the SSIS (SQL Server Integration Services) ETL tool. Analysis Services In the architecture for enterprises, SSAS plays an important role. By using state-of-the-art compression algorithms and multi-threaded query processors, the Analysis Services Vertipaq analytics engine delivers fast access to tabular model objects and data by reporting client applications like Power BI and Excel. Power BI Report Server Power BI Report Server is the on-premise solution for reporting today, with the flexibility to move to the cloud tomorrow. It is included with Power BI Premium, so you can move to the cloud on your terms. In an organization, Power BI report server can be used to: Power BI Reports A Power BI report is a multi-perspective view into a dataset with visuals that represent different findings and insights from that dataset. A report can have a single visual or pages full of visuals. The key benefits of Power BI are: Summing Up In this post, you will learn about implementing the Power BI architecture for an enterprise environment using components such as SSAS and Report Server. Report Server is an on-premises report server. You can create reports in Power BI Desktop or Pro, and viewers can use Report Server to access those reports on a web browser or mobile device, or receive them through email. With SSAS Tabular, there is no hard limit on the dataset size. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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Intelligent Promotion Recommendation for Eligible Employees

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leadership qualities, past performance and appraisals, company's performance etc. Promoting junior-level employees is relatively easy, as this is mostly time-bound. But to promote senior-level employees, it is difficult to evaluate based on the aforementioned attributes, avoiding any biases. We can leverage the power of Artificial Intelligence based technique to identify whom to promote without human intervention.   Intelligent Promotion Recommendation with Artificial Intelligence (AI) To reduce human bias and rule-based decision, artificial intelligence can be used to identify a candidate suitable for promotion. AI will learn from the historical promotion pattens within the organization based on different attributes and parameters, like employee appraisal history, highest qualification, experience, learning etc., and recommend the most eligible candidate for promotion. This can be considered as a supervised learning problem wherein all historical promotion cases can be used to train the models. We can use any tree-based classifier like random forests, extra trees, gradient boosting etc., to train this machine learning models. Later, this trained model will be used to predict the promotion recommendation scores for active employees. Along with the promotion recommendation score, the topmost influencing factor to get this promotion recommendation score can also be identified from this machine learning models. The influencing factors at the individual employee level will enable the management to assess the employee's promotion eligibility, and eventually, facilitate their decision to initiate the promotion process. Managers and talent development teams can use this AI-based, data-driven approach to initiate promotion for an employee. Key influencing factors with respect to promotion for any employee can be embedded into the employee profile along with the recommendation score. This will help to initiate promotion for any employee intelligently, and get rid of the traditional rule-based approach. This machine- and data-driven approach can reduce the time and effort in identifying eligible candidates for promotion without any human intervention. The model will also help the management by optimizing the choice of promoting the most suitable ones from a list of employees, keeping in mind the promotion budget in a given financial year. Conclusion Talent development is one of the important domains where we can leverage the power of AI to make more data-driven decisions than relying on a human-centric approach, which can be misleading in some cases. But AI also has some limitations. Before implementing AI-driven models, each and every attribute with respect to employee promotion needs to be checked carefully. The data shouldn't be biased, and any bias can mislead AI models. So, data analysis becomes an important factor here. Promotion is one of the key aspects of talent development which can affect both employees and the organization as well. An AI-based, data-driven approach can be used hand in hand with the rule-based, human-centric approach to get more intuitive results and better insights. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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Connected Stores of the Future: Reality or Fad?

Blog Rajeswari Sitaraman Head of Retail COIN Ecosystem You have these already downloaded We have sent you a copy of the report to your email again. Whether it is at a startup pitch competition or the latest reports on startup ecosystem, it's exciting to note a significant number of retail tech startups offering a plethora of hi-tech solutions for everything from in-store customer analytics to fully autonomous stores. It appears retailers now have the wherewithal to improve overall store functioning, manage their inventory better, offer superior in-store customer experiences, and ultimately realize their vision of a connected store. Let's take a look at how the in-store technology startup landscape is emerging in key areas: Frictionless Checkout: Technology in retail such as artificial intelligence (AI) and computer vision, and newer payment methods such as tap to pay, mobile and digital wallets, and in-app payments can remove friction at checkout

and offer zero queue shopping. Each technology has its own pros and cons. While Amazon's no lines, no checkout approach involves major overhauls, some autonomous solutions from startups can be retrofitted into the existing landscape. For example, Trigo's AI-powered cameras can be fitted into store ceilings. However, implementation in large stores can become complex and expensive, and the return on investment (ROI) must be justified. By gathering different insights from the data captured and using it to optimize assortments, layouts, and store operations, retailers can get a very fast ROI from deploying frictionless store technology. Operational Efficiencies: With their cutting-edge solutions, startups are eliminating non-value adding tasks, boosting in-store productivity, and improving operational efficiency. Theatro's heads-up hands-free solution enables store associates to have one-on-one conversations, find product information, and provide virtual support without losing focus on consumers. Snowflake provides associates data access at their fingertips, including business intelligence analytics, social media information, and 360o view of consumers. While the technology offers a lot of promise, GDPR and other data privacy laws deters widespread adoption. Customer Experience: With advances in edge computing, CCTV video analytics-based solutions are enabling in-store tracking of shoppers. This is leading to better analytics and proximity-based marketing. Startups like Oriient and Proximi.io offer digital wayfinding technologies and location-based offers. Retailers can adopt either an infrastructure heavy technology (with beacons, WiFi, or smart lights) or infrastructure light technology (geomagnetic field positioning) to track in-store shoppers. Although Walmart and Target are early adopters, guiding customers to the exact aisle and item is a challenge. Merchandise Management/Compliance: In-store digitization isn't complete without automating merchandise management—detecting out-of-stock issues, dynamic pricing, planogram compliance, in-store picking, or pushing promotions based on the shopper's distance from the shelf. Rainus, Hanshow, and AWM Smart Shelf are using smart shelves and ESLs to digitize merchandise operations. In the future, ESL can be used for in-store customer tracking and analytics, personalization, shrink prevention, frictionless checkout, and inventory management, thereby justifying the cost of the heavy initial investment. In-store Fulfillment: LeaReply, Fabric, and Thryve offer solutions to simplify the order fulfillment process, optimize pick-paths, enable multi-pick processing, and automate order orchestration for efficient curbside pickup. In contrast to Amazon's mega warehouses, Fabric is building 500-3000 square meters pocket-sized automated micro-fulfillment centers at the back of stores to process orders more quickly and reduce fulfillment cost. However, these centers have limited storage and order preparation capacity unlike large DCs. Last-Mile Delivery: Bringg, Onfleet, and Instacart offer solutions to manage, optimize, and automate end-to-end delivery operations for greater efficiency and scale. Cleveron is providing mobile vending machines to get orders to customers in a touch-free way. Starship and Manna are offering delivery drones and robots to deliver groceries to customers within an hour. Though promising, delivery drones and robots see limited use due to regulatory obstacles—robots must weigh fewer than 500 pounds, travel at a speed not greater than 10 miles per hour, give way to humans, and should not transport hazardous materials. More testing is required to safely drop packages at the customer's doorstep. A Few Points to Ponder Despite the abundance of innovative solutions in the market, retailers are still slow to experiment with these technologies. While

leaders like Walmart and Kroger are reimagining the in-store experience, these initiatives are still in early stages and it will be a while before we see large scale implementation of the new technology capabilities across their entire store landscape. The biggest hurdles in my view are: Seamless integration with existing ERP and POS systems Adding disparate solutions from various partners will complicate the already heavy store infrastructure and add up costs Huge effort required to define the use case, measuring benefits and ROI, integration and testing these technologies individually, and planning for rollouts with reduced cost and lesser IT spend Conclusion With AI, edge computing, 5G networks, and the booming in-store technology ecosystem, it is possible to have a completely digitized connected store. The future of retail will be powered by a combination of innovative digital solutions. It remains to be seen if there will be one, truly game changing technology that can digitize all facets of the stores, paving the way for infrastructure light yet connected stores. It's time for retailers to look beyond implementing point solutions and build the future ecosystem to collaborate and deliver the stores of the future. This ecosystem will not only drive newer business models but will also help leapfrog competition by delivering the best in-store customer experience, store associate experience, and efficient operations across their store landscape. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Guided Buying – Procurement with No or Minimal Guidance

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To overcome these challenges, the concept of 'guided buying' comes to the rescue of businesses that like to make the most of their procurement systems. As the name suggests, guided buying is a much simpler way of procuring items, from a given set of suppliers, and at the best possible pricing and terms. It frees up the time of procurement specialists, enables the participation of other employees in the procurement process, improves adherence to the company's policies and keeps a check on the spend by automatically exercising controls. It eliminates the need of having multiple systems and streamlines the procurement process. Guided buying requires no or little knowledge of the procurement system. It enables employees to participate in the procurement process without any hassle. End users (the ones who use the guided buying system) need not invest much of their time in learning the procurement cycle and compliance terms, and at the same time, seasoned employees do not have to train these end users, thus enabling them to focus on other core and strategic initiatives. The very idea of guided buying is to enable end users with limited knowledge of the procurement process with the power to procure goods and services. Following are some of the advantages guided buying can bring into an organization's procurement process: Standardized Processes and Pre-built Workflows: Guided buying transforms the cumbersome and complex procurement process into a standardized procurement process with pre-built approval workflows. Increased Compliance: It directs a buyer to purchase from the correct channel such as webforms, punchout catalogs and internal catalogs. The end user follows the standardized procurement process and most of the buying happens within the system. Budget is defined for every cost center/department. Informed Decision-making: The end user makes intelligent and informed choices based on frequently bought items from preferred suppliers. Guided buying also helps a user to be aware of the purchasing policies upfront and stops them from bypassing any. Monitor Exceptional Purchasing: It also allows employees to justify the business need in case they would like to raise an exceptional buying request. Improved Efficiency: Guided buying enables the procurement process to be performed with minimal manual intervention and requires less time to train the end users. Increased Savings: The guided buying system onboards preferred suppliers and negotiated pricing thereby enabling end users to buy from these suppliers alone and at specified prices. Hence, no buying happens outside the system minimizing the changes of any extra spending. Conclusion Many companies are yet to streamline their procurement process and find out ways to encourage their employees to participate in it. They also need to evaluate if their procurement processes are complex, cumbersome, and difficult to understand and follow. With its ability to simply the process, guided buying can be a gamechanger in the procurement landscape to help businesses maximize their savings and improve their bottom lines. Please share your opinions. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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The Big Opportunity for Communications Service Providers in a Streaming World

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mention in the article, the burgeoning streaming market has become a global phenomenon. The largest services--including Netflix, Amazon Prime Video and Hulu in the U.S. saw their subscriptions spike by 50% last year over 2019. In fact, the average U.S. streaming customer now uses seven streaming services. The result: mass confusion over what to watch. But this, I believe, is a great opportunity for CSPs. Put simply, it's to help their streaming customers sort out the complex array of streaming choices – to become the trusted guide that simplifies the streaming experience and, thus, become the CSP of choice. As I describe in my article, it's about building an app that answers the question: "What should we watch tonight?" Such an app must be a highly intelligent discovery engine that curates personalized content mixes. It will have to be a kind of 'smart TV for me' app that returns reliably relevant choices that go beyond platform-specific recommendations. It must consider all the multiple content sources accessible to the viewer. For CSP leaders, achieving this level of customer centricity requires investing in technology capabilities and committing to cultural change. To know more about how to become the streaming consumers' guide to the universe, you'll want to read my Perspectives article. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Float or Sink: How CSPs will Weather the Pandemic Storm

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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. Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Blog Antony Kagoo You have these already downloaded We have sent you a copy of the report to your email again. History, they say, has a habit of repeating itself. The 1918 Spanish flu which threw the world into panic and disarray, has some 100 years later come back perhaps greater and stronger in the form of COVID-19. Touted as a black swan event, COVID-19 stayed true to character, disrupting life as we know it and leaving businesses gasping for breath. Businesses across industries were forced to take mission-critical measures in record time to keep themselves afloat and running. The most vital lifeline for businesses and consumers alike was connectivity, which while enabling businesses to work remotely, had not even been tested for efficacy across scenarios. But if connectivity was indeed the lifeline, CSPs should have witnessed a sharp rise in revenue and profits, which unfortunately was not the case with many of them stagnating and some recording a slight dip at the start of FY '21. While the narrative surrounding CSPs has been mostly negative, all is not yet lost. The black swan event that caused tumultuous disruption, has in fact given rise to a new world of immersive and remote experiences and kick started an avalanche of disruptive business models. The CSPs now find themselves at the cusp of a new digital world. Based on the emerging patterns and trends, we have listed down some of the areas where CSPs will play a critical role. Beyond connectivity Telcos have not fared as badly as the travel and hospitality industries. However, changing consumer habits and continuous economic volatility have forced CSPs to tighten their purse strings and rethink spending priorities in 2021. Through the next couple of years, we will see many telco providers focusing their investments on digital transformation initiatives that will create more value-added services for customers. The CSP digital transformation will mean going beyond connectivity and creating partner ecosystems that position telcos as infrastructure providers for a range of new services for the connected home, driverless cars and smart cities. 5G – a metaphor for enabling innovation The year 2021 is all set to usher in the 5G revolution. This technology not only allows for faster streaming and better quality of video content, but is also the backbone for developments in AI, IoT, mixed reality, edge computing and much more. The interplay of these technologies will create a plethora of innovations that will transform the customer experience. The B2C space will signal immersive experiences with 5G, combined with VR and AI. From trying on the latest fashion from the comfort of your home and checking out holiday destinations in virtual reality to training engineers remotely with augmented reality, the possibilities are endless. In the B2B world, we will

see in the immediate future, businesses across industries will invest in and test out the capabilities of 5G combined with existing technology infrastructure and design. Consolidation of remote collaboration While 2020 saw video conferencing tools skyrocket, 2021 will see a complete evolution in remote collaboration. Organizations around the world are aligned on one clear goal – to make remote working as secure, productive and comfortable as possible. Watch out for the launch of many new tools which aim to make remote collaboration more intuitive and seamless across channels. 2021 will be the year of personalization in well-being The COVID-19 pandemic has had a significant impact on our physical and mental well-being. According to recent research, more than two-thirds of adults in the UK (69%) have reported feeling worried about the effect COVID-19 is having on their life, with the most common issues affecting well-being being worry about the future (63%) and feeling stressed or anxious (56%). As the pandemic has begun taking its toll on our mental health, businesses and consumer brands will be increasingly focussed on well-being in 2021. Acceleration of cognitive enterprise With enterprises shifting their focus to digital and demanding customers, CSPs have been pushed to make intelligent decisions on not just what the customers want, but also on what the customers do not know that they would want. The focus on AI will be exponential in creating digital twins and AI constructs that will enable CSPs to address the need for cognitive decision driven through data. Creating value-based partnerships 5G will mature as we progress through 2021 and this dynamic is already driving CSPs to start re-imagining themselves as a technology company that provides curated and contextual products to specific industries. Piggybacking on CSP's 5G connectivity will herald a wave of partnerships that will usher in the age of ecosystem-driven businesses. To sum it up CSPs might have their backs to the wall, but only temporarily. On the strength of newly arrived technologies such as 5G, VR, AI and edge computing, and so on, and their corresponding interplay, telcos must leverage this opportunity to emerge stronger and fiscally fitter, taking the fight to the born-digital companies. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

The Leadership Mindsets That Make Companies Resilient

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Conjuring the Advanced Digital Transformation View of Healthcare

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bandwagon the question most are asking now is - "What's in store for us?" Technologies like AI (Artificial Intelligence), blockchain, IoT (Internet of Things), AR (Augmented Reality)/VR (Virtual Reality), 5G, and quantum computing are the leading agenda milestones for businesses that have already adopted a digital-first paradigm. While industries at large are in the next phase of digital transformation, the pace of adoption in healthcare has been slow due to legacy systems with archaic architecture. Simply put, despite healthcare organizations constantly upgrading their application layers, they are working on an outdated data layer. Given the complex nature of data, any small deflection could impact patient lives. This is one of the main reason healthcare organizations are developing their cloud migration strategies, and data migration is the last area to be incorporated into the plan. Another reason is security due to the complex regulatory mandates in healthcare. Additionally, healthcare organizations want to avoid any penalties owing to security breaches. The Drive to Digitalize There has been a surge in digital adoption within healthcare recently. Key triggers for change include: Mindset shift: Patients now want on-demand and value-based care. Technology and transparency of information, especially on the internet have empowered the customers with data and they want to see the precise healthcare spending and if it is offering value for their money. Widespread use of Internet of Medical Things (IoMT): From USD 41 billion in 2017 to a valuation of USD 158 billion by 2022, the enormous growth of IoMT industry can drastically bring down in-person visits and aid self-monitoring. A glucose monitoring device that can help check blood sugar levels for a diabetes patient at home while a smart device can offer insights on the results for action is a good example. Additionally, there are thermometers that can help doctors make readings during a telehealth video call, while predictive analysis tools, AI bots plugged into IoMTs could help provide preventive care through recommendations and preferred actions. The pandemic: With inpatient visits down by 22%, emergency visits by 42%, and outpatient visits by 35%, the healthcare ecosystem has incurred a revenue shortage of USD 350 billion as per a recent Forrester report. Here, digitalization helped institutions with service continuity through telehealth and remote care. Government policy changes to encourage telehealth and remote care adoption also help create a positive sentiment. Smart phones, digital cameras and audios helped virtually connect with physicians, saving time and avoiding in-person visits. That said, it is time to reinvent the wheel and take digitalization up a notch, before the system witnesses another unprecedented event. So, what will this re-reinvented ecosystem look like? Innovations in teleconsultation, online waiting rooms, hospital at home, medical shopping, connected devices, and analytics for proactive care will play a major role in the coming years. A possible next-gen scenario where connected devices can change healthcare is detailed below: The Time to Act Undoubtedly, the future looks promising for all the stakeholders of the healthcare ecosystem with value-based care and connected ecosystem. Given there are multiple stakeholders involved in an individual's health and wellness journey, digitalization can help make the experience seamless and improve accessibility and affordability. Additionally, it will ensure care in a lower cost setting with telehealth and self-monitoring. However, successful adoption of digital transformation requires contribution from everyone in the ecosystem for navigating care in a complex environment. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age

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Making the Remote Workplace a Better Workplace

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one of them, and I impart our lessons in my article in the latest issue of TCS Perspectives. We, like many other large companies worldwide, have been weighing the benefits and drawbacks of remote work, and analyzing whether employees are more or less productive at home. We have been evaluating which jobs need to be centralized, and which can be better done remotely. In our case, we shifted more than 450,000 employees in 285 offices in 46 countries to working from home as COVID-19 spread last year. The experience was eye-opening for us, at so many levels. My article goes into these lessons. Here are a few tidbits to tease your interest: We have found that our employees are more productive working remotely, their satisfaction metrics are rising, and they are spending more time on virtual training curricula. In client projects, we are seeing improved velocity and throughput, and we have honored our commitments to clients and their satisfaction levels have also improved. The results have been so beneficial that we have announced a forward-looking operating model, in which by 2025, we can be 100% productive if 25% of our employees work from TCS facilities. In my article, I share five principles for organizations that want to succeed with remote work for the long term. The principles touch upon issues as varied as workplace design, remote governance and manager-subordinate interactions. They address how technologies, such as automation, augmented and virtual reality, and digital benchmarking tools, can contribute to a thriving remote working culture. Looking forward, we believe remote work offers every large company substantial benefits: higher productivity, creates an open and collaborative culture, and attracts exceptional talent. My TCS Perspectives article ("Creating a Thriving Remote, Secure and Agile Workplace") explains how to make this possible. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Electronic Funds Transfer: The Future of Payments in the B2B World

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need to be paid for it. For this, the supplier provides an invoice to the customer. The accounts payable (AP) department receives the invoice, validates it, and then processes the invoice through TAP. Hereafter, the EFT payment batch gets created and approved. The EFT file is generated and sent to the bank. The bank then processes it and sends the confirmation file. Next, the TAP receives the file through SFTP, and lastly the supplier receives the remittance advice of the payment from the bank. For EFT payments, a supplier needs to have a valid and active bank account. The supplier needs to request their customer to register for the EFT payment method. It is important that the supplier provides the correct transit number and bank key number to the customer as a part of the EFT payment registration process. For example, a US-based supplier must have an ABA/Routing number that contains a nine-digit transit number. Similarly, for a Canadian supplier, the bank account should consist of a five-digit transit number and a three-digit bank key. It is to be noted that banks specify standard EFT formats depending on the country and the currency. Hence, it is important to design the EFT formats carefully as per the guidelines provided by the corresponding banks. When a supplier delivers goods/services to their customer, they need to be paid for that. For this, the supplier submits an invoice to the customer. There can be multiple channels for submitting an invoice, such as the supplier portal, electronic data interchange (EDI), email, secure file transfer protocol (SFTP), courier, etc. The accounts payable department receives the invoice, validates it, and then processes the invoice through their AP platform. Thereafter, the invoice gets approved based on the customer approval matrix. Once approved at all levels, the invoice is considered as 'Approved' and is ready for 'Payment'. As a part of the EFT payment processing, organizations have deployed advanced AP solutions. For approved invoices, the payment-processor creates a payment batch for the invoices where the method of payment would be 'EFT'. The payment-processor can create a payment batch for EFT based on the due date, business unit, currency and supplier(s). Once a payment batch is created, the payment-processor can send the payment batch for approval based on the organization's approval hierarchy. Once the payment batch is approved, an EFT file gets generated. Such EFT files are integrated with the bank for making payments. There are multiple options available for businesses to integrate EFT files with banks. One of the options is through SFTP wherein EFT files are sent to an SFTP location and from that location, the bank picks up the EFT payment file. The bank validates details and disburses payments to suppliers listed in the EFT payment batch. It is important that the EFT file contains all the mandatory details, such as the unique client ID, EFT file number and date, and the bank details along with the total invoice count, supplier names, and the total amount to be paid. Once payment is disbursed to the suppliers by the bank, a payment confirmation file is sent to the customer's designated SFTP location. An automated batch job picks the payment confirmation file and identifies the invoices in the payment confirmation file, and updates payment details, such as the payment reference number and payment date, for the corresponding invoices. At this point of time, the status of the invoices gets updated to 'paid', and a remittance advice gets generated. This remittance advice consists of details such as the invoice tagged to the supplier, total amount paid, payment date, and payment batch. This remittance advice is sent to the supplier through an automated email system for their accounting and

reconciliation purposes. Thus, the EFT is a seamless and transparent way of managing end-to-end invoice processing and payment disbursing activities. EFTs are already making significant contribution towards having an environment-friendly and sustainable world around us. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

5G: The Next Big Thing in Utilities

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controls are redirecting vehicles, drones are inspecting bridges, and internet of things (IoT) sensors are analyzing water levels. This shift will be driven by 5G networks, but its impact on multiple industries, including utilities, will extend beyond telecommunications. In Utilities, 5G will reimagine business models, enhance operational efficiency, and more. Besides, the advent of 5G will give more power to the prosumer—consumers who are energy producers—to create their own energy products and make their own choices. Let us see how. The multiplier effect of 5G and other digital technologies In moving from a centralized to a decentralized architecture by adopting millions of connected smart devices, the utilities industry has an increasing need for low-latency real-time information transfer. With 5G and digital technologies come an increased capacity of handling large data volumes. This will allow utilities to improve field worker productivity using augmented reality and enable remote operations of assets. Besides, increased speed, lower latency, and higher reliability mean better connectivity for IoT devices. This will allow utilities to use smart wearables to ensure field worker safety along with a faster transition to smart grids and smart cities. Adapting to the 5G revolution Utility firms are adopting best-fit use cases to capitalize on the fast-approaching 5G. Meanwhile, we also see this as a significant opportunity for utilities to build their own network rather than buying one. A recent survey by global trade association Utilities Technology Council (UTC) found that three-fourth of utilities in the US own over 80% of their networks and want to build their own 5G connectivity. For instance, Duke Energy is currently considering to create its own private broadband LTE system, while New York Power Authority (NYPA) has piloted its own private wireless LTE network. In another instance of a utility adopting 5G, Icomera, a subsidiary of clean energy company ENGIE Solutions, completed the trial of the world's first 5G-enabled router on a train route in Sweden in 2020. A phased approach to 5G adoption The US will account for an estimated 50% of the total 5G mobile subscriptions by 2025, while Europe will be 29%. In this race to maximize 5G adoption, the utilities industry will play a central role by sharing existing infrastructure with 5G networks and driving consumption at the edge, even in remote communities. To get on board the 5G journey, utilities need to strategize and phase their approach, to gain incremental benefits from the transformation: Operations: Use cases fundamental to the day-to-day operations of utilities, such as smart wearables for field workers and better collaboration tools. Transformation: Use cases that transform the way utilities operate, such as connected homes, AR for the field workforce, and more. Reimagination: Use cases at the intersection of different industries involve transitioning from a product-centric approach (like electricity, gas, water, etc.) to a theme-centric one such as smart homes, smart transportation, and more. Successful implementation of 5G use cases in utilities The first step in rolling out 5G is scaling the infrastructure to support fast bandwidth speeds. Collaboration with enterprises across industries is the next step on the 5G journey for utilities, and with this, comes the need to identify and collaborate with the right technology partners. Adopting intelligent and secure communication frameworks will push utilities to the forefront of increased collaboration between governments, mobile network operators (MNOs), prosumers, and other stakeholders. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in

HRMS Industry Cybersecurity: The new frontier in the digital age 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 =======================

Telecom Tower Companies Build on Next-gen Solutions to Stay on Top of the Game

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Located at a single location, they play host to multiple telecom operators, besides hosting broadcasting services such as radio and television. Hence, for essential services not to be impacted it is important that the telecom tower companies work uninterruptedly. Towering challenges When the world was in the grip of the pandemic, with the economy taking a severe beating, telcos were just about able to keep their heads above water. This was mostly because of remote working model companies adopted, which resulted in a surge in individual data demand in 2020. Average in-home data usage in the U.S. increased by 18% compared to 2019. Suddenly finding themselves as custodians of business continuity, telcos had to ensure smooth and uninterrupted network connectivity. But the challenges were one too many, the core among them being: • Availability and mobility of workforce • Restricted physical access to telecom towers • Restricted movement of spares and assets • Negligible visibility on current state of operations These challenges were certainly not the only flies in the ointment – technological issues compounded the problem. We believe, the right mix of innovative solutions and digital technologies can help tower companies address these challenges. Innovative solutions would pertain to accurate measurement and surveillance of data exchange between tower assets and central tower operation centers, data-driven operations, and the use of artificial intelligence to predict forthcoming events and possible faults. What will also help is forming a consortium of combined tickets for one single location to minimize access, enabling the landlord to provide solutions, and facilitating community support to enable information of the tower. Riding the next-gen wave Tower companies will also need to rely on sophisticated IoT and intelligent technology solutions to monitor and control operations. The key enablers for this will be deployment of the right sensors to capture telemetry data and its uninterrupted transport to the control center, with control systems connected to telemetry in order to manage the assets, along with physical and parametric surveillance mechanisms. But monitoring alone will not help; real-time data capture is also vital. IoT-based solutions involve mounting sensors anywhere on the tower which includes door, fuel tanks, energy meters, fire alarms, and inventory. These sensors collect and transmit real-time information to the tower operation center (TOC), ensuring smooth operations and infrastructure safety without much reliance on manual intervention. To ignore next-gen solutions will therefore be akin to taking a myopic view of the situation. The key technologies tower companies must focus on are: a) AI/ ML and automation-led cognitive operations Telecom tower companies should use cognitive technologies to not only predict future problems, but also take AI/ML-led intelligent and automated preventive actions. For instance, fire incidents may cause downtime and interrupt tower uptime. By using cognitive operations, fire incidents can be predicted well in advance; in fact, preventive actions can be taken to avert them. This will not only increase tower uptime, but will reduce opex too. b) Drone based monitoring Automated drones can be used for aerial inspection of towers. They can be programmed for autonomous flights which is quite useful in monitoring towers built at remote locations. By leveraging drone-led tower inspection, critical announcements for employees and the public at large can be easily made. Besides, drones can be used to spray disinfectants on tower resources and warehouses, and can also be used as fire extinguishers. They can therefore play a vital role in maintaining health and safety of employees involved in critical business and field operation

roles, besides keeping vandalism at bay. c) Robotic process automation (RPA) By using RPA for tower maintenance, tasks can be automatically assigned to automated and intelligent robots. Backed by machine learning technologies, these robots can imbibe the knowledge gained over repetitive tasks. Various tasks such as invoice processing, event-based maintenance, trigger required action on payment or revenue default, backup and recovery processes, dispute handling with landlords and vendors can be resolved by RPA, thereby reducing operational costs. d) Robotic arms to fix issues Robotic arms can be developed which can climb on towers and fix physical damages, if any. Aerial inspections done by drone can identify the issue which can be fixed and rectified by robots (remotely managed), or robotic arm installed on the drone itself. To summarize, telecom tower companies need to transform their ways of working. Rather than depend on physical access at the tower, they need to bring in next-gen technology solutions to overcome operational challenges and enhance process efficiencies.   The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 Financial Companies Should Prepare for the Post-pandemic World

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Next-Generation Skills – A Must for the Modern Workforce

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end users. Over the last decade, the design and delivery of applications has witnessed a radical transformation. On the surface, it may appear that this change focuses on the core architecture and technological facets of building applications. However, upon deeper analysis, it can be observed that the manner of presenting applications to end users has also changed, in keeping with the changing technology landscape. The expectations of end users have evolved applications from being solitary to social, reactive to conversational, and static and monotonous to vibrant and visually pleasing. Modern applications need to be secure, modular, replicable, heterogeneously located, and must co-exist and collaborate with other applications. Therefore, it is almost impossible to build applications with modern sensibilities using outdated techno-functional skills and ideologies. Undeniably, today's application designers, developers, solution-builders and testers, that is the workforce, must be adept at managing new age data and application technologies. While emerging technologies continue to deeply influence the way applications are architected, the workforce will also require certain significant non-technical skills for designing modern applications. Such skills include, but are not limited to: Digital Technologies: It is imperative that the workforce has a general understanding of multiple digital technologies and specializes in at least one digital technology, such as cloud computing, big data, internet of things (IoT), blockchain, microservices, containerization, mobility, and so on. It is difficult to imagine a modern application that does not use any of these technologies. Design Thinking: Application design, which includes both core architecture and the user interface (UI), begins on a whiteboard but not in the integrated development environment (IDE). The principles of design thinking must be applied, keeping in mind, the purpose of the application, its required features, the intended audience and how users will interact with it. Advanced Mathematics: Machine learning, artificial intelligence, neural networks and natural language processing (NLP) algorithms that power today's intelligent applications are nothing but a combination of sophisticated mathematics and statistics. The workforce must be skilled in these areas to build and test intelligent applications efficiently. Data Privacy: An understanding of data privacy principles will help the workforce build applications that have data privacy at the very core of their functioning. Privacy-by-design will aid applications in adhering to regulatory requirements and safeguarding data privacy. Intellectual Property (IP): The workforce must have a reasonable understanding of IP principles to protect their newly generated IP and prevent any unintentional IP infringement issues while building applications. Human Psychology: An understanding of the basic elements of human psychology and cognition will help the workforce build user-friendly and customer-oriented applications. Insights into how users interact with software or machines, needs versus wants, frustrations, delights, biases, expectations, anticipated actions in various circumstances, decision-making skills, perception of colors, and so on, can help in creating engaging applications. Interpersonal Skills: Applications are mostly built by teams and not individuals. The new way of operating in a virtual mode from hyper-distributed locations has changed the notion of an office. The pressure to deliver applications with agility puts a strain on the collective team. An application can be delivered successfully through collaborative intelligence. Hence, the workforce must demonstrate empathy, the ability to switch roles, and camaraderie to overcome the barrier of

distance. Domain Understanding and Market Awareness: An application is not just about screens and cutting-edge technology. It is a portal to the inner business processes that are critical to an organization's functioning. These business processes are heavily influenced by the domain in which the application functions. The domain could be industry-oriented (for example, banking, insurance, retail, telecom, and so on), or industry-agnostic (for example, DevOps, legacy modernization, data management, data protection, and so on). Domains are susceptible to continuous evolution with technological advances. It is critical that the workforce is in tune with various domains and contemporary market needs for building contextual and relevant applications. Sensitization to Language, Culture and Diversity: Increasingly, applications are being designed for heterogenous audiences. However, applications must be tailored adequately to make them acceptable to specific userbases. This is especially crucial for business-to-consumer (B2C) applications that have a wider reach. For example, a certain color, or its shades, may not be considered appropriate in certain cultures. In some countries, there may be a preference for a product's UI to be in their national language. Therefore, the workforce must be cognizant of such cultural expectations and aversions, so that it can design applications accordingly. The Way Ahead for the Workforce Building modern business applications will require the workforce's skills to transcend beyond traditional programming and move into the realm of humanities, arts, science and soft skills. A cross-functional skill set will allow the workforce to build more user-centric, business-contextual and efficient applications. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 Algo Retail will be Essential to a Resilient Retail Industry

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times has made gadgets and wearables commonplace. It has also greatly assisted the wellness programs both in letter and spirit. Individual awareness and participation in wellness has especially gained momentum since the onset of the COVID-19 pandemic. The extensive use of monitoring devices in day-to-day life not only help identify healthy individuals but also influence their lifestyles for the better. The trend has taken root and has the potential to grow quickly. As new business models and players emerge, offering wellness-related programs, insurance companies have moved to utilize these eco-systems to offer better plans and products. Eyeing the Wellness Opportunity It has been observed that even a small health setback for an individual can motivate embrace of a wellness program or a schedule offered by third parties or the employers. It could start with an initial health assessment followed by periodic reviews and later sustained by incentives directly from the insurers. This is where the policy holders or participants of group plans could feel motivated to increase their participation in the wellness challenges thrown open from time to time. Additionally, backed by opulent new data and research, the insurers are better placed to tap into the opportunity by creating more futuristic insurance plans for individuals and participants. The idea has been strengthened by research over the past years establishing that the genes of identical twins can change or be activated or deactivated differently without altering the underlying DNA sequence. Further, environment, geography, nutrition, exercise, and other individual sustained wellness-laden choices can influence the expression of the genetic codes. This has been proven by an emerging science - epigenetic testing. This was also one of the main reasons insurance regulators prohibited the use of genetic information such as sickle cell analysis or genetic traits when creating plans as it became clear the opportunities for insurance need not be limited to circumstances of birth. Securing the Future Members of wellness insurance programs have been allowing information sharing through wearables. This has enabled faster and easier standard underwriting of policies. In fact, a large number of people are willing to share the information about their daily vitals for various purposes including rewards. This treasure trove of information has the potential to help underwriters better assess the true risks to individuals with granular differentiation, not only for product and price personalization but also to store crucial data for future generations. Additionally, family history and parental lifestyle is a crucial factor in assessing risk for individuals. Capturing and studying the vast data pool can help not only analyze the lifestyle patterns and the existing state of wellbeing but also make it possible to offer customized products and plans going forward. These insurance business models can evolve very quickly with technological and medical assistance. In addition, they can help predict emergency situations well in advance and save lives with timely actions. For instance, given the pace of development, going forward, predictive technology will potentially be able to help an individual about to experience a cardiac arrest while driving a car. A combination of IoT and medical technology will likely help immediately transfer them to an ambulance and ensure timely care. Peeking Behind the Curtain The business insurance models of the future are set to evolve to entail: Insurance carriers are slowly graduating from Straight through Processing, automated underwriting or accelerated underwriting to continuous underwriting and real time underwing, paving the way for Pay as You Live models. In addition, there is a consistent shift towards influencing a

behavioral change with regards to the lifestyles for a group of individuals rather than utilizing the data from the existing behavioral lifestyles. The gadgets, fitness wearables, hearables and nearables could be optimized to enforce this change. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

The great customer experience opportunity for logistics providers

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TCS. Discover our press releases, reports, and company announcements. Sowmya Mullur Rajagopalan Arun Pradeep Surendra Mohan You have these already downloaded We have sent you a copy of the report to your email again. The COVID-19 crisis accelerated three important challenges for the logistics sector: rising consumer expectations for quality service, distribution companies' growing impact on the environment, and the emergence of new and innovative logistics players. Logistics companies cannot ignore these issues. Those that master them will gain big competitive advantages. In our article in Perspectives, we discuss the origins of these fundamental changes and what logistics companies can do to thrive. One of the most important questions they must answer is who owns the customer experience. Is it the logistics company, the retailer, or the goods manufacturer? In the days when consumers mostly shopped at stores, retailers ruled. But in a world in which online shopping continues to grow, the delivery of products to consumers' homes has become just as important as the in-store retail experience. That means the stakes go up for logistics companies. A mishandled purchase, damaged package, or delayed delivery? Retailers will hear consumers' complaints. Sellers of goods will start to select shipping partners based on quality of service, not only price. We explain three must-dos for all logistics companies: First, easy-to-use mobile apps and websites. Many of today's user interfaces make it difficult for consumers to find what they need. Intuitive navigation and fast response times on queries (like delivery status updates) can win consumer loyalty. Second, performance data shared with business partners. A logistics firm with strong delivery performance can cement relationships with retailers and other business customers if it lets them know about that performance. Third, rigorous delivery tracking. End customers must be able to track their shipment deliveries on their desired devices and send immediate feedback to the shipping company. The data from these deliveries can help shipping companies identify unproductive drivers, unreliable transportation, and other inefficiencies. This is a great time for logistics companies to pull ahead of the pack. We invite you to read how this can be done in our Perspectives article. TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Role of AI in HRMS Industry Improving content accessibility for people with disabilities Achieving Stronger Brand Equity through Customer Centricity and AI-driven Marketing 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 ======================

The Many Shades of Intrapreneurship

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Different organizations interpret and implement their intrapreneurial initiatives differently. At one end of the spectrum are organizations that look at an intrapreneur as an employee who is assigned the responsibility of leading an innovative initiative or developing a new line of business. And at the other end are those that set up venture funds that invest in chosen employee ideas, thus allowing employees to pursue something they are passionate about. These employees then work on developing 'their' idea into a new product or business that has an independent existence of its own outside the organization. Between these two extremes is a continuum of possibilities that allow an employee to run 'company initiatives' or 'individual ideas' with varying degrees of autonomy. The Quasi-Intrapreneur At one end of the spectrum, the intrapreneur is like any other employee in the organization, with goals and responsibilities defined by the hierarchy that he or she reports to. Let us call this left-most end the 'quasi-intrapreneurial' end. For all practical purposes, there is hardly any element of entrepreneurship here, and attributing any sort of intrapreneurial or entrepreneurial connotation to such a role would strictly be incorrect. Since the employee continues to draw a salary from the organization, there is no element of personal risk involved (although there is a professional risk of impact on career and reputation in case of failure). Accordingly, at this end, the rewards tend to remain within the organization's defined mechanisms of increments, promotions, discretionary bonuses, commissions, and so on, and additional non-monetary awards and

recognition. The True Entrepreneur The other end of the spectrum is where intrapreneurs become entrepreneurs, where, for all practical purposes, the relation transforms from being one between an employee and an employer to one between a startup founder and an investor. Let us call this extreme right end the 'entrepreneurial' end where the boundaries between intrapreneurship and entrepreneurship have blurred to the extent of becoming one. This is an attractive proposition for those with a real entrepreneurial zeal - those who are passionate about their idea and would eventually take the leap of faith (with or without organizational support) from being an employee to becoming an entrepreneur. What it provides an organization is an opportunity to make this transition smoother for the employee, and in return get seed funding opportunities to enter new areas of business at low cost. Additional benefits for the organization include, a continued relationship with a valued employee and a great culture of innovation and entrepreneurship. The strings attached and the cushions provided could vary from one organization to another. The Spectrum Between these two ends of the spectrum lie various shades of real intrapreneurship. Moving from left to right, this is characterized by a gradual: For any organization, where it aspires to be on this continuum, is a strategic call that it needs to take. Reaching this aspired destination could either be a one-step transition or a gradual transition from left to right, enabled by the right policies, structures, and processes. So where are you on the continuum? And where do you want to be? Intrapreneurs are like Entrepreneurs. Or are they? Most definitions of intrapreneurs and intrapreneurship end up with a reference to how similar they are to entrepreneurs and entrepreneurship, and how they are not. How alike then are these personalities? Are the motivations and drivers of an intrapreneur the same as the motivations of an entrepreneur? Are all the traits that are desirable in an entrepreneur, equally desirable in intrapreneur? How should an organization manage its intrapreneurs? Can, and more importantly, should, intrapreneurs and entrepreneurs be measured by the same yardstick? There a myriad questions (and fodder for future blog posts) and as always, the answer to all these isn't entirely objective. It depends on which shade of intrapreneurship one is looking at. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

AI-Enabled Near-Match Duplicate Invoice Prediction

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Duplicate invoices are typically identified and actioned-based on standard system checks using invoice parameters like business unit/company code, invoice date, invoice number, invoice amount, invoice currency, supplier number and supplier site. These parameters may vary depending on the organization's policy or geographical requirements. However, this method has an inherent flaw; due to OCR inefficiencies or mistakes in manual data entries of these invoices, there are always chances that the data value(s) populated may have incorrect value(s). In such cases, the standard system check will not identify the invoice as a duplicate invoice, and it may get posted for payment. This also presents a considerable risk of fraudulent transactions. The Traditional Approach To overcome this issue, post-invoice processing, organizations perform an offline check at the payment stage, like manual checks, excel macros, or using a third-party analytics tool, to identify probable duplicates that are not caught during system check. This approach will work for organizations with limited, say weekly or bi-weekly payment runs. On the other side, organizations not deploying such methods end up putting additional effort in recovering the incorrect payments issued to suppliers. The monthly supplier AP statement reconciliation activity (wherein duplicate payments are identified, reconciled and payments are tallied, and for excess payments, debit notes are raised on suppliers for recovery) will result in open balances and extensive coordination with suppliers for the recoveries. The Way Forward Consolidating multiple inflow channels into one or two will result in reducing duplicate invoices. However, this is a major change management activity, and communicating and convincing your suppliers will be challenging. A simple solution for identifying near-match or probable duplicates at the invoice processing stage itself is desired by many AP organizations. There is a new breed of applications that use artificial intelligence and machine learning capabilities to predict near-match duplicates. These applications provide a warning or send an alert message to AP processors to take the necessary corrective action. In addition to traditional parameters like business unit/company code, invoice date, invoice number, invoice amount, invoice currency, supplier number and supplier site, other parameters like payment terms, currency, invoice line details such as UOM, unit price, item code etc., are included for more accurate prediction. The application may predict multiple duplicates for any given invoice based anything on the above parameters. To ensure only optimum effort by the AP processor to validate these alerts, often, a minimum confidence level threshold is set up - like for example, a prediction of anything above 90% confidence level should only be displayed to users. This threshold can be increased to higher levels based on the maturity achieved. There is an in-built, self-learning mechanism in the application to identify trends for specific invoice parameters and make more and more accurate predictions with time. Benefits Using the AI-enabled, near-match duplicate invoice prediction feature, the AP team can focus on core activities and ensure the timely processing of payments to suppliers. This will save hours of effort in fixing (un-match/un-post) duplicate invoices and supplier follow-ups for recoveries, which in turn may save dollars spent on efforts and prevent incorrect payments. As per an in-house time study exercise conducted on process activities, on an average, unmatching and un-posting requires 15 minutes for each invoice, which essentially means avoiding 1,000 such unnecessary transactions will result in saving 250-hour worth of efforts. Most technology-driven organizations are adopting this

approach to eliminate making duplicate payments. This, in turn, can also complement their green initiatives; for instance, a computer/laptop uses between 50-100 watts electricity in eight hours, and avoiding 1,000 duplicate invoices will save around 1,500-3,000 watts electricity. This can be a win-win solution for both customer and supplier organizations. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Driving Holistic Security with Zero Trust

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Blog Kamesh Meduri You have these already downloaded We have sent you a copy of the report to your email again. The exponential growth in cloud-native solutions, channel transformations, and ecosystem-centric business models are all contributing to higher security risks for organizations. As global firms pivot to remote workforce in the new normal, the need for protection has only increased. This is evident from a 238% increase in cyber-attacks on banks and financial institutions. In addition, the commercial cyber insurance market is expected to touch USD10 billion in 2020. Additionally, security is one of the top risks on the radar for many global (re)insurers. Zero Trust (ZT) technology can help aid better security for the firms. It is a tool that offers guiding principles and strategies to uplift the enterprise security posture from the standpoint of architecture, resilient operations, and compliance. Using the ZT tool identities can be verified without exceptions and assumptions at every control point, i.e., architecture layer, network segment, and data access. Challenges from Existing Traditional Approaches In the current phygital era, online presence is no longer one of the channels for the firms but an existential need for B2C and B2B2C businesses and has reputation and legal penalty risks depending on how global and big you are. This drives the need for a comprehensive security strategy for these channels. Here's a quick look at the current challenges for the IT teams responsible for digital security for a firm: Zero Trust to the Rescue ZT builds on two main objectives – limit the surface exposure and increase defense depth. Here's a look at ways to achieve these. Surface limitation Surface means applications that process transactions exposed as services on data-consuming resources. Since data is the ultimate guarded asset, it helps to take a data-centric approach on surface limitation. Empower data governance If the business aspires to be data-driven, it should take charge of data estate, realize the importance of data stewards, and begin with (sub) domain-wise data dictionary (glossary) and data lineage initiatives. Later, responsibilities can be expanded to include security policies and audit data lifecycle policies across the IT landscape. Data stewards must play the role of a guide and auditor. IAM offers a good start The first step of ZT is to identify and make identity and access management (IAM) a great starting point. In the current generation of social identities by Google, Facebook, LinkedIn, etc., the identifying job has been delegated. Trusting identity providers and the extent of trust is a bigger decision point. Incrementally, there is a need to apply the least privilege, minimal duration, and small perimeter principles. Multi-layer protection at cloud scale At layer 7, log-in forms have now been replaced with single sign-on (SSO) while regulators are mandating multi-factor authentication (MFA) in the financial world. At lower levels, on-premise appliances like firewalls are not enough. Enterprises need a Secure Access Service Edge (SASE) or Cloud Access Security Broker (CASB) solutions as per the cloud deployment model. Eliminate implicit trust Zero Trust mandates checking of the incoming channel, network, user-role, and data packets on each request. Technologies such as mobile device management, deny-all firewalls rules, client X.509 certificates, and data-in-transit (payload) encryption are available choices for enhanced depth of defense. ZT: Evolve as you Go Along Given the ZT tool needs to evolve to deliver in line with new workloads and emerging threats, there is a need to ensure we make the best use of our limited resources. Here's how that can be achieved: Filter the noise Logs are a great start but cloud or on-prem ITOps

dashboards aggregating logs, heart beats, readiness checks, KPI metrics, cluster events, firewall logs multiplied by instances will soon swamp operations. False alerts create avoidable panic among business leaders and internal compliance teams. Hence, investing in an analytics layer will make sense out of the noise. Drive sense of ownership It is an uneven setup with thousands of code-churning developers, a handful of reviewing architects, and a couple of operations staff. Legacy technology developers are naive to code vulnerability threats, and intranet app developers never had to worry about database encryption. There is a need to provide a repeatable process and tools to each stakeholder, e.g., code scanners for programmers to cope with this steep learning curve. Conclusion To effectively guard against human weakness, continuous tooling and automation, as well as awareness and coaching, are important. On the machine front, applying Zero Trust principles will offer a structured approach. This would help the security initiatives by driving ZT objectives of reducing the attack surface and increasing the depth of defense. However, ZT does not offer a prescriptive implementation path. The path to deliver is by carving your own journey, factoring in culture, IT estate, organization structures. Zero Trust is not a buy-and-patch solution but a strategic toolkit in holistic enterprise security transformation. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 =====================

Catastrophic Cyberattacks: An Existential Threat for Cyber-Insurance Industry

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data. As a result, many large organizations now require their third-party contractors and vendors to have cyber liability protection, driving the demand in the market. When a large data breach happens, most organizations and consumers have little or no evidence of the exact data that was compromised and its impact. So in most cases, the liability of the carrier is limited to first-party cyber coverage and identity theft protection to impacted customers. Third-party liability claims are settled depending on the available evidence and limited to the single organization. Drawing an analogy with property risks, a large hurricane is considered a catastrophe. Today, unlike cyber claims, many catastrophic property claims are handled seamlessly because there exists a strong market and mature ecosystem which has taken several years to evolve. The cyber insurance industry too could use some help. In the absence of sufficient loss data for risk modeling, the industry needs partners who can ascertain a good risk from a bad one, constantly monitor threats, and restore services in the face of a cyber-attack. Cyber insurers need to partner with ecosystem players who can identify, mitigate, and prevent cyber risks. This will help reduce risk exposure, strengthen the ecosystem, and promote market growth. The US government has played a significant role in promoting and supporting terrorism risk coverage (TRIA 2002) after the 9/11 attacks. Similarly, a recent supply chain attack should be treated as an eye opener for global governments on the impact of cyber risks to economic growth and national security. This should prompt them to support the industry by mandating and sponsoring cyber insurance. More than a third of cyber insurance is ceded to reinsurers. However, increasing loss trends, shorter payout times from ransomware demands, and low investment returns are putting pressure on reinsurers. The cyber industry needs their support in the form of proportional and non-proportional treaties to strengthen and broaden coverage. Cyber insurance is a means for today's digital enterprises to become resilient in the face of exponentially growing cyber threats. However, carriers are unable to provide sufficient coverage due to constantly evolving threats and insufficient loss data. On the other hand, insurers have consistently reported higher cyber claim losses than previous years. As a result, the industry is struggling to make ends meet while its sustenance is threatened by a potentially catastrophic cyberattack. The industry needs support from all stakeholders until it matures and can withstand catastrophes on its own. The emerging cyber ecosystems, pro-cyber government policies, and strong re-insurer backing will need to nurture and strengthen the industry in the coming years. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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: The Backbone of Logistics

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industry. Many leading logistics and delivery players had already started investing in smart technologies even before the pandemic to keep up with the rising demand for speedy deliveries as well as the growth of e-commerce. However, the pandemic has exposed weaknesses in the current supply chains with sudden lockdowns and international border closures. There has been a lack of traceability of goods across the supply chain in real-time leading to unwanted delays. As shipments leave the warehouses, the end customers have a limited visibility with respect to their packages. End-to-end real-time supply chain visibility can address these challenges and also prove to be a significant differentiator for the logistics players globally. Though the implementation of cloud technologies is top of the mind for leading technology leaders, the urgency to speed the implementation has increased amidst the COVID-19 health crisis. As per leading analyst and consulting firm Gartner, more than 50% of product based organizations plan to invest in real-time supply chain visibility platforms. As organizations look at solutions for thriving in the new beginning, the concept of supply chain visibility would include static as well as in-transit goods. One of the largest global package delivery organization has deployed a smart solution to monitor its network volume, enabling real-time assessment of external environment, routes, and demand volumes. This helps to respond quickly to any sudden changes in volumes in lieu of any disruption or crisis. As for micro, small and medium enterprises (MSME's) that have been hit by the pandemic and might not be willing to invest heavily in digitization technologies, how do they mitigate the challenges? This is where logistics software-as-a-service (SaaS) is expected to see a rise in adoption and MSMEs will prefer to pay-as-they-go in a drive to adopt digital technologies for seamless deliveries. Moreover, there is a buzz around multi-cloud strategy among the logistics' organizations. We also predict that cloud logistics might gradually move towards edge computing logistics where the data processing will take place at the location rather than in a centralized system, saving significant amount of time and bandwidth. There is no doubt that the pandemic has accelerated the use of technology from being an option to be a mandate. To what extent will companies adopt and how will it play out, is yet to be seen. The winners will be companies that use their imagination and have the ability to take risks. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 =====================

Allying with a Strategic AI- and Pharmacovigilance-focused Technology Partner

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essential to build applications by partnering with the right cognitive automation provider. Collaborating early on offers multiple benefits including risk mitigation, innovative strategies, and a faster speed-to-market. Secondly, it is imperative for businesses in the life science industry that wish to be successful in embracing the PV digital transformation to be in alignment with key stakeholders within their organization on the following elements: Only after the alignment with key decision makers on all the above elements, can any conversation on next-gen technology be pursued. Next up, selecting an experienced AI/ML technology provider can directly impact the outcome of the entire PV system, reporting, and risk management. Businesses need to evaluate the following considerations while selecting a digital technology provider who excels in PV: Technology experience: Provide robust, reliable, and successful implementations with an impeccable track record in an integrated area of services and technology, specializing in PV operational and scientific excellence coupled with deep digital and cognitive automation development experience. Product implementation experience: Demonstrate evidence of the AI platform in production as well as offer proof of concept projects and be able to show metrics and experienced results. The provider should be able to guide the organization toward full adoption of cognitive automation-based PV model, function by function, beginning with a pilot project. Value-based Roadmap: Provide an industry roadmap reflecting the technology provider's understanding of how the next-gen PV is evolving, illustrate value-driven developments, and define the key capabilities provided by technology for addressing current and future PV challenges and needs. Safety case processing coverage: Enable safety case processing automation spanning the entire spectrum of activities including case intake, triage, data entry, processing, medical coding, causality assessment, analysis, narrative writing and reporting. Powered by niche technologies such as AI, ML, and natural language processing (NLP), the technology provider should be able to handle high safety case volume with quality, accuracy, and consistency. Scalable: Provide scalable, cloud-hosted platforms that enable the quick handling of large safety case volumes and spikes, can address unpredicted safety situations (such as COVID-19 safety-related issues), product launches, product acquisitions, and/or changes in regulatory requirements. Minimal disruption to existing processes: The ability to implement the PV technology with minimal or no impact on the existing business processes as well as with limited dependency on customer's resources. Explainable technology: Explanatory decision trees and audit logs for 'anytime inspection readiness' is an essential prerequisite in pharmacovigilance. The technology provider should empower users with access to complete audit trail, including full traceability of actions and decisions taken by the AI system in a human-readable log. Learning management: The PV system should have the ability to learn and apply the new learning with every case processed, and the repository of learnings should continue to grow with variety and the volume of cases processed. The technology should also enable human governance on machines and human-identified learnings through defined change management, thereby facilitating machines to learn from their own and reviewer's actions, draw inferences and solicit approvals from humans to inculcate the learnings gained. Tangible efficiencies: Implementation of an innovative automated PV model should augment efficiencies in PV delivery in view of current and future changes and challenges. Every organization is

different with varying business processes, organizational structures, and technical requirements. However, there are some common objectives where all of them converge, and the need to implement PV automation with open platforms being one among them. There are different ways to implement a cognitive automation-based PV platform: build your own platform, assemble, and integrate disparate tools from other solutions, or deploy a ready-to-use AI solution. Depending on an organization's business goals and technological capabilities, any one of these options works better than the rest. This article aims to provide a guiding philosophy for organizations that are about to embark their next-generation technology roadmap in pharmacovigilance with a best-fit technology partner.   Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Finance and Accounting – The Importance of the Right Design at the Right Time

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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. Blog Raghavendra Kanchan Domain Consultant, BFSI You have these already downloaded We have sent you a copy of the report to your email again. Finance and accounting processes are the lifelines of businesses across the board, as they deal with accurate and timely recording and reporting of financial information. Hence, having the right set of processes, controls, and systems for finance and accounting is critical for the success and scalability of any business. Currently, we see a lot of focus on process re-engineering and automation across businesses, as some critical elements of eliminating or minimizing manual tasks were missed during the finance and accounting solution design and setup. Missing these key aspects would mean higher full-time equivalents (FTEs) required for processing, additional automation efforts, missed KPIs, and ultimately, additional cost for the business. Drawing from our experience of setting up the finance and accounting process for one of the leading UK pension providers, we identified that higher levels of efficiency can be achieved by embedding digitalization and automation in the design during the initial setup. Some of the key areas that will make the finance and accounting process agile and effective from day one, are outlined below. Understanding the banking system and payment cycle of the geography Each country has its own set of banking rules, payment types, payment providers, payment intermediaries, and payment cut-offs. Understanding the banking system and payment modes for both money-in and money-out is an important element in solution design. For example, a direct debit payment type is something that can be controlled by the business processes, whereas direct credit has a dependency on the payer and may need manual intervention in reconciliation. Hence, businesses should evaluate payment methods at the design phase and select a payment type that provides faster turnaround time and also ease of identification and reconciliation. General ledger (GL) setup and bank reconciliation Businesses must have a highly automated and robust GL and bank reconciliation solution. Automation of reconciliation rules and reports setup depends on the additional information tagged against the accounting entries, and it is important to understand this additional information during the GL setup stage. This should cover requirements from the perspective of reconciliation, reporting, and financial controls. For example, bank reconciliation primarily needs two main inputs – data from the GL and the money movement feed from the bank. The availability of a unique reference between the GL and bank transactions is key for all types of reconciliation, irrespective of the reconciliation system used by the business. Most businesses fail to identify this at the setup stage and then spend huge efforts and investments in improving the auto-reconciliation percentage. Based on our experience in automating finance and accounting processes, businesses can achieve more than 95% auto-reconciliation from day one, if the required reference and the automation rules are defined correctly during the setup. Controls Embedding the right

set of preventive and detective operational and automated controls in the end-to-end solution and process design from day one is very important. Some of the standard controls that businesses can implement are explained below: Operational controls Automated controls Advantages of the right design at the right time The key areas discussed in this blog are simple yet critical for any finance ecosystem. Based on our experience, we think that if businesses focus on these key elements during the finance and accounting design and setup, that will make the end-to-end process efficient from the get-go. To reap the benefits of reduced future automation costs, industry best practices, robust end-to-end controls, and minimal FTEs, businesses must think of the right design at the right time. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =======================

Students Showcase Their Vision for Sustainable Technology

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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. Blog Yogesh Chauhan You have these already downloaded We have sent you a copy of the report to your email again. Reducing the carbon emission of emails. Harnessing big data. Helping companies understand their environmental footprint. And aligning investments with sustainable development. These are some of the themes addressed by hundreds of university students from across the UK as they created and pitched ideas as part of the Tata Consultancy Services' (TCS) Sustainathon UK 2021. The Sustainathon is a problem-solving competition that aims to inspire students to find solutions to pressing environmental challenges, using digital technologies. After a virtual pitching marathon, judges backed Biophilic, a team from University College London. They overcame stiff competition with their vision of an app that could work alongside Scotland's National Entitlement Card (NEC) — a public service access pass — to incentivise more sustainable choices by users. The team received their award at the 2021 TCS Innovation Forum at the Design Museum in London. Biophilic explained that their vision was both local and global. "We used the fact that you can use an app to not only focus on Scotland but in turn make it a much bigger thing — possibly globally," said team member, Eden Habtou. Challenges and partnerships From its origins in Singapore in 2020, TCS Sustainathons are expanding worldwide, with the UK event held during the recent COP26 climate conference in Glasgow. "TCS launched the Sustainathon because serious times require serious intervention," said Yogesh Chauhan, Director of Corporate Sustainability at TCS. "That intervention for us has been about inspiring and giving young people an opportunity to participate as problem solvers for some of the pressing and urgent environmental challenges we are facing as a society." Altogether 45 teams of students got a fortnight to choose and develop solutions to four key challenges— empowering communities to be more sustainable; finding new ways of reducing the carbon footprint of emails; helping students to live more sustainably and making spending more eco-friendly. The students weren't alone. In the spirit of TCS' Co-Innovation Network™ (COIN™) of industry and academia, the teams collaborated with customers, non-profit organisations and government agencies. Masterclasses were delivered in virtual mode by experts on topics from inclusive design to careers in sustainability. "When we partner with a business like TCS, that's when an energy and a synergy and a dynamic happens," said Professor Moyra Boland, Dean for Global Engagement at the University of Glasgow and one of Sustainathon's partners. "Our students see a live business with real-life problems to solve, and they get to take their academic studies and apply them." The challenges were set by TCS' partners. This exposed the students to real-world business dilemmas, as Gopalan Rajagopalan, Head of TCS Scotland, explained. "The Sustainathon, as we conceived it, was really identifying certain real-life problem statements, not by TCS, but by our customers." "We approached our customers, who were from a diverse set of industries, covering public sector, financial sector, energy sector, and each of them came up with problem statements. We then invited the students to

participate in providing solutions using technology." The winning combination The challenge that prompted Biophilic's winning entry was submitted by Scotland's local government support organisation, the Improvement Service (IS). IS wanted to explore how individuals could be empowered to adopt more sustainable behaviours using digital technologies. They asked for ideas on expanding the scope of Scotland's NEC service and to consider how users could be rewarded for making sustainable choices. Biophilic envisioned a digital-first solution. "The idea that we had was to create an app that would go alongside the NEC and to digitalise it and to make it more accessible to a wider demographic, and in turn making it more inclusive," explained Hora Behnejad from the team. "We also wanted to incentivise the card and make it similar to a loyalty card. So, the more sustainable choices that you make — such as using public transport over your personal vehicle — the more points you gain. Then you'd be able to redeem these points at local sustainable businesses." Biophilic's vision drew plaudits for its ability to transcend boundaries. "The important thing about [the team's] ideas were that they were inclusive," said Martin Brown, Head of Digital Public Services at The Improvement Service. "They spoke to old Scot, middle Scot, young Scot, they also spoke to the business community." The innovation generation From a sustainable vision of university living — courtesy of Team Glen Girls for the Future — to Team Godiva's big data analytics-powered low carbon emails, and Team EcoRunner's plan for sustainable investments — the ambition and range of ideas did not go unnoticed by judges and mentors. "We all get a little bit focused in our jobs, same people, same conversations," said Annie Smith, Head of Corporate IT at EDF Energy. "Working on the Sustainathon, working with the university students, honestly, it blew my mind," she added. K Ananth Krishnan, Chief Technology Officer at TCS, put it this way, "This competition as well as our Innovation Forum represent our commitment to accelerate effective collaboration between businesses, governments and academia, inspire the younger generation and build long-lasting, inclusive and sustainable futures for everyone." The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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and others really have a chance at survival? The glum answer is 'yes.' Focusing on customer-centric thinking on a periodic basis and creating a digital replica of the customers would help in achieving two key purposes: • Understand the customer's pain points and provide appropriate solutions, preferably before competitors, and • Go beyond pain points and create innovative state-of-the-art solutions to build a mindscape for the brand How agility solidifies the framework? Now that the customer-centric framework is planned, let's anatomize an organization and focus on its core pillars to understand if it's agile enough to adapt swiftly and deliver value. • Customers Aligning an organization's business priorities and strategies along with its customers' needs is of paramount importance. A global IT leader and pioneer of the subscription-based business model has exemplified success in its transformation journey through extensive data capitalization and continuous leverage of analytics, thereby driving hyperpersonalization to its customers. Therefore, proactive and continuous customer segmentation using frameworks like STP, RFM, and other market segmentation matrices helps to not only deliver individualized experience but also to meet the latent needs of millennial customers. • Workforce Needless to say, the workforce of an organization needs to be passionate and driven toward the overall goal. To be truly agile, the employees need to be adaptive and develop cross-functional skills. Their outcome and productivity must not be hampered by location, devices, tools, and technologies. The work, workplace, and workforce are all elastic and hence need to be agile in the new normal. One must take customers to the 'zone of loyalty' by crafting customer experience in such a way that it exceeds their expectations.
• Processes Driving continuous transformation is the key to unlocking the potential for a truly customer-centric future. This calls for relentless process reimagination to delight customers with revamped experience strategies and retain them for a foreseeable period. Also, by leveraging process mining techniques, the dark areas can be uncovered, and the inefficiencies can be tackled to yield superior, automated, and transparent processes. Data sovereignty and ambient intelligence will drive the business processes for tomorrow, thereby emphasizing the inevitability to infuse the existing processes with intelligent capabilities. • Technology The technology landscape in today's world must be robust, low-code no-code, on-cloud, microservices, and containerization-based. If any next-gen technology or web 3.0 is to take the world by storm, this will help to leverage it and get on the bandwagon as quickly as possible without getting disrupted. Technology trails with high compute power enable fail fast, fail safe, fail better through rapid prototyping and faster learning. This in turn will reduce technical debt. • Management model Having a data-driven and purpose-driven model is pivotal for organizations to leapfrog their competitors and stay ahead of the curve. Democratizing data, embracing newer technologies, and building data literacy would invariably set the data culture to boost economic and social value through continuous innovation. The 'now' data-empowered employees warrant a clear purpose that aligns with their values to keep them motivated and fulfilled. If the focus is only on business as usual (BAU) today, there will be no business tomorrow. The shortening of the innovation lifecycle makes it imperative to fortify the organizations of today with best practices, key trends, next-gen technologies, and a solid agile framework to flourish tomorrow. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR

and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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5G: Next-gen User Experience

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requirements by network slicing and provisioning network-as-a-service (NaaS), thereby optimizing its usage according to individual requirements. Open Radio Access Network (O-RAN) will help in the interoperability of multiple vendors, while 5G value chain will encompass low latency mobile ecosystem with higher network capacity to provide a unique network experience to customers. Hence, 5G networks will bring the desired business and social transformation across different domains. Various companies have collaborated to work on indigenous 5G solutions. 5G trials and network testing have already begun in India, which will be followed by spectrum allocation in the coming months. Accordingly, companies have started customizing their products in the lines of 5G requirements. India is at the forefront in this telco transformation with its diverse demographic market. Smart cities: 5G infrastructure will play a critical role in India, where various smart city projects are underway to transform the lives of the people. 5G networks can facilitate the concept of connected vehicles, cloud-connected traffic control, and intelligent parking system with blind-spot detection to ensure safer mobility and minimize road casualties. It can deliver real-time video feeds at high resolution, thereby ensuring emergency services are provided promptly. 5G-connected glass can provide information about the surroundings. Google has already created products like Google Anthos, a multi-cloud open-source platform, by leveraging its cloud computing expertise to help customers easily migrate their enterprise data centers. Microsoft has acquired Metaswitch Networks and Affirmed Networks to deliver on the promise of 5G with the convergence of cloud and virtualized communication. Smart work: 5G-enabled precision agriculture will provide farmers with the right inputs to customize their farming needs. The emergence of 5G networks will greatly improve disaster risk management as natural calamities like Tsunamis or earthquakes can be predicted with much precision. 5G networks and equipment are energy-efficient and can drastically reduce energy consumption across a range of industries, reduce carbon footprint, and contribute to the fight against climate change. In crowded spaces like stadiums or auditoriums, a good network speed can be achieved as 5G works like a dedicated Wi-Fi connection. Small changes in the stock market can also be tracked in real time. 5G networks can provide reliable connectivity and enhanced security to employees working from home. They can share larger amounts of data faster than ever. Hence, work from home would not have been sustainable in the absence of optimum network speed. Smart homes: Connected appliances at home and just-in-time solutions enabled with AI will change the way we live. Who would have imagined the refrigerator at home can be connected to the food supplier's system to put up requests for the required food item or the remote-controlled air conditioner or CCTV camera can be operated from anywhere. Movies and web series on OTT platforms are already driving customers crazy with binge-watching. With the coming of 5G networks, high-quality content with reduced latency could be available to OTT subscribers, which will in turn tremendously increase the customer base and soar the advertising business. Gaming on cloud has become a reality. Thanks to 5G technology, one does not need to have a play station or download any games as they have instant access to the cloud marketplace. Smart factories: Massive internet of things (IoT) and internet of behavior (IoB) systems are going to transform the logistics and supply chain infrastructure. The plethora of connected IoT devices with edge computing for smart

manufacturing will greatly reduce the production and transportation lead time. Microsoft, Amazon, and Google will proactively customize their cloud offerings in view of IoT and edge computing. Telco companies will collaborate with cloud service providers and deploy 5G and data centers closer to the edge. Delivery drones are now becoming a reality as 5G network ensures seamless communication with drones for a completely automated delivery process. The concept of a fully digitalized factory can be realized with thousands of sensors being connected to enable IoT over 5G. Smart healthcare: In addition to opening the door for remote surgeries and video consultations in rural areas, 5G networks enable healthcare providers to monitor patients remotely and gather real-time data. With help from 3D medical imaging, pattern recognition, and augmented reality – extended reality (AR-XR) capabilities, the right diagnosis can be arrived at, and a cure can be provided before acute symptoms arise. The full-blown 5G infrastructure and broadening of the network could pose many cybersecurity risks. Milli Meter Waves (in 5G) has the risk of fading due to obstacles in the line of sight of propagation. However, every limitation is an opportunity. They pave the way for more innovation in the booming mobile connectivity space. This is how we have evolved from the 1st to the 5th generation of technology and continue this journey to reach 6G and beyond. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Mitigating Security Risks in AI-Driven 5G Networks

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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. Sandip Brahmachary You have these already downloaded We have sent you a copy of the report to your email again. Malicious attacks on artificial intelligence (AI) based systems are rapidly increasing and telecom infrastructure is no exception. Adversarial AI attacks have gained momentum over the last few years, given the unprecedented pace at which telecom companies are launching 5G services and using AI and machine learning (ML) to improve network performance and customer experience. As per Deepsig, 55% of the decision-makers believes AI improved network customer experience, 70% believes that AI in network planning is the best technique on switching to 5G and 64% will focus their AI efforts on network performance. As the applications of AI and ML increase, so do the security threats on 5G networks (Figure 1). Unscrupulous entities can manipulate AI systems by: ·   Bypassing the system through crafting files or including noise ·   Manipulating results through tampering processed data and engaging in irrelevant or malicious dialogs with chatbots ·   Extrusion through spotting, copying, and transferring sensitive data An infographic on why telcos must prioritize mitigation efforts to minimize risks in an AI-driven 5G network. During the development phase, poisoning and backdoor attacks can compromise integrity. During the deployment phase, security risks include evasion attacks or reverse engineering, model stealing, or data extraction through model inversion or membership inference. Possible attacks on security and corresponding mitigation approaches Poisoning: In this type of an attack, intruders intentionally inject crafted and irrelevant data into the training repository to pollute and weaken corresponding AI functionalities. To overcome this, telcos can enhance data quality by thorough pre-processing in a controlled environment. They can also sanitize data, prevent data ingestion from unmanaged or uncontrolled data sources, and build ensemble models to restore output. Use case: In 5G open radio access network (O-RAN) infrastructure, AI and ML are used to predict traffic and optimize radio resource management. Using an recurrent neural network–long short-term memory networks (RNN-LSTM), telcos can identify congestion by training the system to predict traffic patterns of any selected network. The model needs colossal amounts of historical 5G data for training, and it requires regular retraining for upgradation. This creates opportunities for attackers to inject irrelevant data to corrupt the model. Telcos must deploy robust management policies to block ingestion of data from unmanaged and untrustworthy sources.   Backdoor attacks: Here,

attackers implant malicious functionalities in the AI model. Only the perpetrators will know how to trigger and execute the attacks by overfitting or incorporating specific rules. Telcos can prevent risks by enhancing data quality, sanitizing data and detecting and deactivating triggers. They can detect triggers by identifying statistical differences between authentic and malicious inputs. Regular retraining and data pruning can deactivate the discovered triggers. Use case: 5G depends on multiple suppliers in its managed multi-operability environment. This can aggravate the potential impact of backdoors in the supply chain. Measuring the statistical difference between inputs and triggers and retraining the AI model at regular intervals can help reduce risks. Evasion attacks: In this scenario, input data is tactfully modified and eventually, the AI model loses the ability to identify malicious inputs. Telcos avoid these attacks by compressing data, enabling null labeling for the negatively impacted inputs, restoring inputs and outputs by preserving the essential attributes, and saving the output in an ensemble model. Use case: Due to the open and broadcast nature of wireless communications and the heterogeneity of IoT data in 5G, telecom networks are vulnerable to evasion attacks. By observing the spectrum, attackers try to find channel access algorithms of IoT transmitters. They build deep neural network classifiers, which predict transmission outputs. Based on these predictions, wireless attacks either jam transmissions or manipulate results during the sensing phase by transmitting irrelevant information in the test phase. Corrected inputs and outputs need to be preserved to mitigate network evasion data attacks. Model stealing attacks: Here perpetrators craft a replica model to create auxiliary adversarial samples, which work against the live system. Or they hunt for the exact model without data hurdles, using APIs. Telcos must regularly enhance AI models to safeguard these from stealing attacks. The watermarking feature also helps to protect ownership of data. Telcos must establish procedures to control queries and detect suspicious ones. Use case: Adversaries can counterfeit the functionality of any proprietary 5G data-based AI model like proactive maintenance, cost prediction, and so on, through black-box access like firing queries and clone the original model for financial benefit. Restricted and secured API calls and queries, regular model improvement with latest data and watermarking can help control this type of attack. Data extraction attacks: Here attackers use leaked information, such as personally identifiable information (PII) of customers, from the input and output pairs of AI-ML models and extract the corresponding confidence levels. Telcos can overcome vulnerabilities by embedding privacy controls in the training datasets, quantitatively measuring data privacy controls at regular intervals, and controlling queries and detecting suspicious ones. Use case: PII data is often used for building AI models. Restricting and securing API calls and implementing robust data privacy policies can minimize risks related to 5G PII data thefts. Prioritizing mitigation efforts While all the possible attacks can negatively impact telecom companies, organizations must prioritize risks and their related actions. Poisoning and data evasion are the most common attacks and backdoor is the toughest to detect. Model stealing and data extraction are the most fatal attacks in terms of data security. As best practices, telcos must regularly sanitize content, implement robust data quality systems, continuously validate data, and retrain models to minimize risks from security attacks. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech

Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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several quarters in 2021 and later. Tourist arrivals were down 87% in January 2021 as compared to the same period the previous year. International visitor arrival declined nearly 74% in 2020, resulting in revenue losses of over $1 trillion and job losses of more than 62 million. While the several lockdowns brought the sector to a standstill, the pandemic has provided governments, regulatory bodies, and business organizations an opportunity to rebuild the industry with sustainable policies and practices. It has also opened new opportunities and additional revenue sources for the tourism and allied industry sectors, such as telecom. Rapid adoption of technologies, including 5G and augmented reality, have created new avenues for telecom companies to launch immersive virtual experiences. Telcos can provide virtual reality solutions, with which customers can experience tourist destinations with a click of a button, from the comfort of their homes or from anywhere in the world. They can partner with other industries to build large ecosystems with new business models and shared revenue streams. Such an augmented solution for immersive tourism, is a mixed reality experience meant to be enhanced with advanced technology. The solution is not a replacement to conventional tourism. It leverages mixed reality, the most promising of all the simulated reality technologies, built by using digital objects in the real world with the capability to enable interactions between the reality and virtuality. It is in the middle of the spectrum comprising virtual reality at one end and augmented reality at the other. After several false starts over the years, these technologies have finally become commercially viable. The immersive solution referred to above combines various digital experiences that use a combination of real and virtual objects to various degrees. The idea is to bring in dimensions of experiences to users that are not viable in the physical world. We conceptualize the immersive tourism experience to offer: An infographic for an augmented solution for telcos that creates immersive tourism experiences. This includes virtual travel to remote areas across the globe, annotations for a better understanding of a historical place, virtual shopping, and digital spaces modeled on real locations. Telcos can partner with local and international tourist destinations and governing bodies to offer immersive tourism as a service to their individual as well as business customers. This also provides them with the opportunity to lead these partnerships. Moreover, this solution of immersive tourism can be transposed into other formats, such as experiencing a musical concert from a privileged vantage point and real-time immersive touring of a production plant for a floor visit. New opportunities like immersive tourism also give telecom companies a competitive edge in increasingly crowded markets. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Consumer Data Right: Impact of Open Banking in Australia and Beyond

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the top four players, have been registered in the Australian Competition and Consumer Commission (ACCC) as data holders, and ten financial institutes have become Accredited Data Recipients (ADR). To encourage participation and increase CDR adoption, the ACCC recently amended CDR rules for expanding its benefits to more businesses, including companies and partnerships. Business impact of CDR – the bigger picture CDR's impact can resonate within the Australian geography and beyond: · Banks are adopting new-age business models by collaborating with non-banking organizations to address customers' purpose-specific needs. These partnerships create a unique business ecosystem where the bank's domain expertise combines with Fintech's innovative start-up mindset to develop new products and open new revenue channels. For instance, by leveraging open banking data, banks and Fintechs like Meniga and Personetics are providing personal finance management offerings. In Australia, Frollo is popular for its CDR-powered financial wellness app, while X15 ventures, powered by the Commonwealth Bank of Australia (CBA), is building next-generation digital solutions for 15 million CBA customers in partnership with entrepreneurs. Recently, banks have demonstrated an interest in becoming ADRs so that they can create propositions and provide differentiated data-based customer experiences. CBA has become the first data recipient under the CDR scheme, followed by the Regional Australia Bank. · While enabling responsible lending, CDR also provides a significant opportunity for Fintechs to assess the creditworthiness of prospective borrowers and helps in credit decisioning by acquiring the customer's financial data (transaction history, mortgage details, etc.) from banks. · Open banking initiatives are also inspiring banks to consider the small- and medium-sized business (SMB) segment as a new growth avenue by building a comprehensive suite of innovative digital offerings and positioning themselves as business partners to next-gen SMBs. By leveraging open API ecosystem data, banks are now replacing their traditional credit assessment processes with AI-based credit models to improve the credit lending process of SMBs. · Countries like Brazil and Mexico have drawn inspiration from CDR while outlining their own open banking regulations. In following CDR's footsteps, UK is now moving towards open finance, the next step in their open banking journey. Technology impact of CDR The CDR implementation has a cascading impact on a bank's overall technology roadmap and acts as a catalyst in its digital transformation journey. Banks are using this opportunity to streamline their API management capability, including restructuring and realignment of current architecture, the establishment of new architecture (if required), microservices adoption, API management, and security. Banks and other financial institutes are architecting Identity Access Management (IAM) solutions and data platforms to address CDR-specific requirements. These solutions can be extended horizontally across the enterprise. CDR opens an opportunity for banks to conduct pilots on technologies like cloud computing, augmented reality (AR), data analytics, etc., without impacting the bank's traditional technology ecosystem. This can be used as a trust builder for enterprises when it comes to new technology or methodology adoption. Way forward The future of CDR can be foreseen in different stages of maturity. · Emerging stage: Challenger banks and neo banks are responding to the technology evolution at a greater speed than traditional players. CDR is giving traditional banks an opportunity to stay relevant and provide purpose-driven services to their customers. · Matured stage: Banks

have the scope of monetization by providing voluntary data to ADR. Voluntary data also provides opportunities for innovation of services offered within the CDR regime. Currently, CDR use cases are limited as it only allows read access. CDR can be extended to include action initiation, including managing and closing products, payment initiation, etc. · Advanced Stage: CDR is expected to be an industry-agnostic data-sharing standard across Australia, providing a foundation for the digital economy. The ACCC has already taken steps to push CDR across other non-banking sectors like energy and telecommunications to support a data-driven economy. · 'Nirvana' stage: CDR can be envisioned as a borderless data-sharing standard, helping enterprises to expand beyond geographies and provide frictionless customer experiences. CDR supports data-driven economic growth by encouraging the development of innovative purpose-driven products. It has the potential to blur industry boundaries and enhance the Australian economy. For achieving this, regulatory institutions, banks, and other players must raise end-user awareness about open banking and build consumers' financial literacy, which will also help improve CDR adoption. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Achieving Circularity – Building Sustainable Supply Chains

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Nitesh Solanki Supply chain consultant, Manufacturing, TCS You have these already downloaded We have sent you a copy of the report to your email again. The benefits of a circular economy are well documented, but most businesses are reluctant to put the theories to practice. According to Gartner, about 70% of global supply chain leaders intend to invest in the circular economy but only around 12% have actionable plans in terms of linking digital and circular strategies. Supply chains play a vital role in the transformation, and manufacturers and the entire production ecosystem must bring about a paradigm shift to achieve the goals of building sustainable businesses. The transition from the 'take-make-dispose' attitude of linear supply chains, to the 'take-make-recycle' mindset of circular supply chains (Figure 1) faces roadblocks, including: The growing global circularity gap Today, the global economy is only 8.6% circular — just two years ago it was 9.1%, according to data by impact firm Circle Economy. The negative trend was caused by high rates of extraction, ongoing stock build-up, and low levels of end-of-use processing and cycling. An infographic shows the circular supply chain which plays a pivotal role in the creation of a circular economy. It starts with a manufacturer and then moves on to distribution center, retailers, customers, and recycling agents who send reusable materials back to the manufacturer. The whole process can be made sustainable by adopting industry 4.0 technologies such as smart manufacturing, cloud, blockchain, digital twins, analytics, and reverse logistics. Embracing circular supply chains Manufacturers understand that circular supply chains are the future. However, total transformation requires step-by-step planning, due diligence, a proven governance model, and long-term vision. Here are some cost-effective approaches that can help manufacturers to start their journeys towards embracing circular supply chains: a) Reduce waste: Poor planning and execution result in a lot of waste. Organizations must upskill and reskill their employees and train their suppliers to reduce waste in production and the overall supply chain. Digital technologies such as the internet of things (IoT) can identify the location, condition, and availability of raw materials. This real-time data can be fed into machine learning systems to predict failures, thus minimizing waste. Moreover, suppliers can be incentivized through rating programs to adopt best practices. b) Reuse materials: Using renewable materials in packaging gives organizations a good start to adopt circular practices. For example, using corn-starch packaging, recycled cardboard and paper, and aluminum cans reduce cost while also saving scarce resources. Manufacturers can also consider biodegradable bubble wraps, blankets, and corrugated paper rolls

for packaging different kinds of components and products. c) Upcycle goods: Reverse logistics can be used to recover items from disposal and realize value from them. Every link in the supply chain must have collection points for recycling. The collected products can then be refurbished, renewed, and returned to the market. Manufacturers must directly get involved in the cycle. Several leading global players including Unilever, L'Oreal, and The Coca-Cola Company are already using reverse logistics to align their business processes to achieve circular supply chains. While Levi's accepts used clothes and shoes from any brand for recycling, Dell collects damaged and used electronics to reprocess plastics for use in new products. d) Invest in technologies: New-age technologies such as blockchain give digital identities to products. These bring transparency to the production process and improve traceability of goods in the supply chain. Manufacturers can also deploy digital twins, advanced analytics, cloud, and real-time data collection technologies to improve the efficiencies of the supply chain. Advanced forecasting algorithms using artificial intelligence and machine learning minimize errors and keep optimal inventory buffers along the supply chain. Better demand planning and demand sensing strategies help organizations reduce fluctuations of demand and supply in the extended supply chain. This would also lead organizations to avoid waste and emissions caused by overproduction. While the pace of change maybe slow, embracing circularity is inevitable. Manufacturers realize that customers are becoming more aware and are concerned about the impact of businesses on the environment. On the other hand, regulatory agencies are also mandating the move towards sustainable business operations. In order to meet sustainability goals, manufacturers must start small, scale at pace, and begin to embrace circularity throughout their supply chains. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 =====================

Super Apps – A One-stop Destination for Everything

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Gov services from central to local bodies. Another upcoming super app will provide a one-stop solution for all vehicle ownership and driving license related services and eliminate the need for citizens to visit multiple websites of different states and union territories. Building a business case A market with several users who have not used a particular digital feature provides an opportunity to businesses for acquiring new customers during the first transaction and increase customer retention for new needs in the future. The following benefits of super apps can form the basis of a strong business case: Key technical considerations There are multiple technology solution options to be explored for implementing super apps. For making an informed decision, the suitability of options must be weighed against the following parameters: Parameter Description App size Not to be very large Development workflow CI/CD across development teams using different technologies Design Uniformity in design and branding Session management Session and journey information exchange between core app and microapps Switching services on/off Ability to instantly enable or disable with no impact Single sign-on No multiple logins Journey analytics Collection of journey analytics data Native features Incorporating native features offered by mobile OS   Finally, cost and timeline to implement selected options will be an important deciding factor. Technology options WebView/Progressive Web Apps (PWA) Each function served by a website opened within the app or in a browser. The website can be a PWA, which allows UI elements and UI logic to be stored on the device and rendered through a borderless browser. Deep linking multiple apps Separate apps developed and to be invoked from the main app. Monolithic app Single app regularly updated and developed as new functions are added. Proprietary super app SDK (Software Development Kit) Super app SDK for app development teams to use predefined API, frontend features and data structures creating modules which are seamlessly integrated through configuration. Summary Smartphones become sluggish due to the myriad of apps installed, each serving only one single purpose. Mobile manufacturers address this with new designs like split screen options, more memory, more storage ultimately adding to the cost. Like in the physical world where customers moved from different stores to malls and then to e-commerce apps that provide a one-stop destination for everything, smartphone users are preferring a single destination for all their digital service fulfilments including entertainment, finance, travel & hospitality, food delivery, marketplace, social media, and customer service. Organizations looking to expand their customer base or take advantage of their large, existing, and loyal customer base have a great business opportunity in the form of super apps. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ====================

Automation Capabilities for Enterprise-wide Agile and DevOps Adoption

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features to support funding investments for large initiatives, and to break down large initiatives into capabilities, epics, and so on. Value stream delivery should provide the required integration to the entire delivery ecosystem of CI/CD tools. The enterprise agile platform should also support multiple agile product and program portfolios. Automation product capabilities The basic capabilities required in these agile and DevOps products or platforms should: • Enable multimodal options like traditional lifecycle management and agile program portfolio planning • Support the planning of large initiatives, capabilities, epics, features, and user stories • Manage program roadmaps • Plan and track all releases and iterations • Manage dependencies between backlog items • Estimate and prioritize any of the above entities • Manage the complete lifecycle from demand to deployment • Support multiple agile ways of working like scrum, Kanban, the Scaled Agile Framework (SAFe), and such • Support both cloud and on-premises options • Integrate seamlessly with tools for continuous integration, continuous testing, continuous delivery, and continuous deployment • Provide configurable dashboards and reporting capabilities • Enable collaboration, use of documentation attachments, and search facility User expectations The product should enable any stakeholder in the enterprise to manage ideas and generate demand requests from the same. It should allow portfolio managers and programs managers to manage multiple agile programs and portfolios; agile program managers to create and manage program backlogs, roadmaps, strategic themes, and value streams. Release managers should be able to plan releases and iterations by fetching items from program backlog into the release backlog, while the team should be allowed to schedule sprints and fetch items into the sprint backlog. In addition, the platform should enable the deconstruction of value streams hierarchically into epics, features, and user stories for agile portfolio managers to identify and manage large initiatives. For enabling this, the product must earmark funds and manage budgets across strategic themes and value streams. The product should enable the team to plan and track daily work, such that tasks at multiple levels roll up to appropriate programs and portfolios. While it should allow the development team to manage user stories, it should also help testers to create and manage test cases and defects. The use of the product automation features should facilitate the agile mindset by moving away from traditional methods of delivery. Such automation increases throughput and reduces cycle time by allowing DevOps engineers to define build, test, and deploy stages, and job steps as a part of the CI/CD pipeline. Agile thrives on active collaboration in which stakeholders actively share documents in support of any entity and discuss the details. The platform should create and maintain discussion threads and forums to encourage such collaborative development. It should provide configurable workflows to track appropriate approval of artifacts before the team consumes them. It is important for the product to maintain audit trails for all entities, so that any changes, along with the respective date and timestamps, are traceable. Furthermore, there are several industry regulatory requirements that agile products need to comply with, like digital signature-based workflows, audit trails and such. As an effective culmination of these varied requirements, enterprise stakeholders need strong KPIs and metrics-driven management of agile programs through configurable dashboards and reports. These should depict the accurate status of the daily work, and highlight the key information needed for corrective action. It is

also imperative for the platform to provide analytics-based projections of future trends based on historical information. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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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Cyber Insurance Regulations, a Step Forward Against Cyber Threats

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of the report to your email again. With the rampant increase in cyber-attacks, the need for cyber insurance as a means of protection has unarguably never been higher. The World Economic Forum has stated cybersecurity failure among the highest risks in its Global Risks Report 2021. Ransomware attacks have increased by 150% in 2020, with the amount paid by victims increasing by over 300%. A study from the Ponemon Institute indicates that over 76% of US small and medium businesses (SMBs) experienced a cyberattack in the past year. The rising frequency of these cyber incidents is bound to increase the demand for cyber insurance. In this regard, insurance regulators have stepped up efforts for cyber risk mitigation and protect businesses by taking initiatives to regulate and monitor insurers and their cyber product offerings. Context of regulation Cyber insurance helps businesses safeguard against breach incidents and provide coverage for associated costs, including regulatory fines. In the US, the Federal and State Insurance Regulators have recommended cyber insurance regulations to protect key industries against cyber threats. The types of regulations and their impact vary greatly, from simple data collection or periodic reporting of risk exposures to understanding inclusions and exclusions in a cyber insurance product. The role of regulators in cyber insurance The Cybersecurity Information Sharing Act was one of the initial Federal laws passed in 2015 to enable sharing of personal information on cyber incidents. Many states have enacted their own legislation to address cyber risks in depth - from exclusions to penalties. The National Association of Insurance Commissioners (NAIC) insurance data security model law finalized in 2017 was recommended by the US Treasury Department, urging states to adopt it in five years. The law establishes data security standards and data breach mitigation processes for insurers. Currently, 19 states have adopted it, with seven states doing so in 2021. States have also enacted privacy laws, such as California's Consumer Privacy Act (CCPA) and NY's SHIELD act, while other states like Maine and Nevada launched online privacy laws with General Data Protection Regulation (GDPR)-like provisions. Almost all US states have introduced Data Breach Notification laws that have to be complied with when consumers' personally identifiable information (PII) is compromised. A few states such as Connecticut, Maine, and New Hampshire have gone further and added requirements specifically for insurers to notify the state's insurance department. With the spate of ransomware attacks, the Office of Foreign Assets Control (OFAC) has issued a ransomware advisory discouraging ransomware payments. Recently, NY state had proposed a bill, which is currently under review, that bars businesses from paying ransom in the event of a ransomware attack. Cyber insurance regulations are expected to expand toward such measures for protection against cyber attacks, along with strict enforcement through fines for non-compliance. What regulations mean for insurers Cyber-attacks are evolving continuously in sophistication, from phishing and encryption to ransomware-as-a-service attacks. As they can pose a systemic threat, regulators expect insurers to acquire cybersecurity expertise and keep up with market trends. Consequently, insurers are also partnering with cyber security companies to assess insurers' risks or get advice on compliance policies to gain knowledge. This will help them underwrite cyber-risk with appropriate inclusions, exclusions, or sub-limits for cyber-related losses and to comply with regulatory requirements. Wake-up call for SMBs SMBs generally lack cyber expertise

or the budget to have a cybersecurity program. According to a recent survey, only 20% of SMBs have cyber insurance. Insurers with cyber expertise and their cyber ecosystem partners are poised to guide SMBs and may act as their risk advisors. Apart from regulations, supporting guidelines have evolved to help businesses implement adequate cybersecurity controls. The National Institute of Standards and Technology's (NIST) cybersecurity framework is one of the early initiatives for cybersecurity awareness among SMBs. The Cyber Insurance Risk Framework was also recently introduced by NY's Division of Financial Services. These frameworks enable SMBs to meet cybersecurity compliance and understand their risk exposure. In July 2021, Connecticut state enacted a law to incentivize businesses with safe harbor protection on adopting any of the industry-recognized cybersecurity frameworks. Another initiative is the Cyberspace Solarium Commission report with its recommendation for state regulators to develop certifications for cyber insurance products. These help consumers/insureds understand the level of protection and compliance to laws offered by insurance products. The way forward Regulations aim to reduce threats and improve the cyber risk environment. They may even necessitate businesses to have cybersecurity solutions and data privacy standards in place before seeking insurance. Although these may increase costs associated with insurance, they bode well for the cyber insurance industry in the long term. Cybersecurity solutions and data privacy standards prevent losses and help the insurance industry embrace cyber risks in a meaningful way. Cyber insurance regulations are bound to influence the future course of the industry for good. The regulations will ensure better cyber security measures and wider adoption of cyber insurance and curated insurance products. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Bringing Life to Things™ in Consumer Packaged Goods Industry

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things self-aware. In other words, Bringing Life to ThingsTM leveraging the combinatorial power of sensor data, computer vision, analytics, AI, robotics, and other digital technologies. We believe that there are unique business dimensions and technology constructs that organizations must investigate to discover and realize the value in terms of driving exponential growth, achieving the next level of efficiencies, strengthening relationships with the channel and partners, and improving the quality of life of consumers. Value through smart and unified business ecosystem To realize the value of bringing life to things, enterprises need to embed certain business dimensions in their strategy to strengthen positioning in the ecosystem. Boundaryless: Organizations have the choice to expand and create a network of connected value chains in the ecosystem. For instance, a leading food producer integrated its cold chain containers to the IoT platform of the shipping line. Using insights on the transport condition in combination with the shelf life, the firm started to dynamically re-route shipments to stores. This integration of value chain of shipping-line and food producer into a common ecosystem resulted in business value for all the ecosystem players. Pervasive: Organizations can develop the capability to respond and serve 24X7, make decisions that are elastic and optimized for demand. For example, a leading CPG player designed IoT-centric systems to be able to use sensor data from the machines and create digital twins of the plants. This is helping the firm take real-time decisions to optimize the output, limit the waste, and more. Experience rich: Enabling a seamless feedback loop helps select the most efficient path to value with enhanced satisfaction. For example, at the recent Annual Tech Conference in Las Vegas, P&G displayed a connected toothbrush with a feedback loop. To provide hyper-personalized experience to parents, it is providing a baby care system designed around digital diapers and video monitoring. In another instance, an enterprise digital twin was used by a leading enterprise to simulate the real environment of a retailer's data centers, stores and fulfilment centers, enabling informed decisions to replenish inventory based on actual demand and avoid stock-out scenarios. Shoppers get products every time they walk in, translating into superior customer experience, while manufacturers can keep lost sales situations at bay. Technical constructs to enable the transformation To enable these business dimensions, we see enterprises treading the transformation journey along the technology maturity continuum described below. Connect in context: This essentially means embedding digital sensors and other technologies into products, factories, supply chains, retail points for traceability, performance and experience improvement. A leading FMCG player was facing quality-related challenges owing to manual intervention in the labelling of finished products. It switched to computer vision-based system for detection and rejection which was integrated into the enterprise systems. The solution not only helped in reducing labelling errors and manual effort, but also in identifying opportunities for operational excellence. Predictive: This involves capabilities to utilize enterprise data and data from IoT devices to generate insights for decision making and performance improvement. Industry segments such as home and personal care and apparel and toys are increasingly focusing on e-commerce, and direct-to-consumer fulfilment, putting additional pressure on the supply chain to be responsive and cost-effective, especially for the last-mile delivery. This calls for predictive insights to be able to dynamically respond and optimize logistics operations

for efficiency and cost savings. Self-aware systems: Enterprise setups that can correct their performance, sometimes without human intervention, is the end game that leading firms are moving towards. For example, warehouse robots equipped with sensors and AI avoid collisions with workers and other robots, improving workplace safety and avoiding downtime. The way forward Firms can take different approaches to create exponential value across production, supply chain, channel partners and consumer engagements (see Figure 1). An infographic that depicts the IoT capabilities that will allow firms to become self-aware, develop predictive capabilities, and enable connectivity across production, supply chains, and customer service. The IoT systems will help firms create connected products, improve throughput, allow for predictive maintenance of assets, secure IT-OT assets, augment the workforce, and more. For supply chains, these systems will enable circular and autonomous manufacturing, enable warehouse automation and inventory optimization, and provide supply chain visibility, last-mile delivery, and more. All these will help firms deliver to their customers through omnichannel experiences, virtual store connects and insights, consumer tracing and tracking, and more. We believe, bringing life to things is the way to go for enterprises across industries, and in CPG sector in particular. . Companies that deploy agile ways of working, adopt new business models, build futuristic solutions, develop unique capabilities across the value chain, and focus on delivering superior customer experience will be able to sustain profitably. Developing an ecosystem with the right set of the technology partners and nurturing an innovation network would define the pace of this transformation. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

One Management Solution for Your Cloud Mix

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Yes, there are tools available in the market with the capability of providing this functionality of centralized management. But they have to be procured, configured, and maintained—all of which require a lot of money for training people or getting talent with the niche skills to manage such tools. And while third-party tools may offer several cloud-native features, you can't extend many of those features seamlessly to all the resources in your IT environment. Leveraging public cloud capability to manage your IT infrastructure is the smart thing to do. Why? Because end users only need to consume the service and not put in any upfront investment. This automatically shaves off about 50% of the overhead from what enterprises would have incurred if they had to manage resources themselves. Another plus point is that public cloud providers that provide this centralized management functionality ensure that their services are regularly updated with the latest features or upgrades, allowing users to take advantage of native integrations and compatibility with other cloud-native services such as log analytics and security dashboard. What's more, such cloud management solutions have the ability to integrate with an IT service management tool that helps log incidents or change requests so that the service management process for your cloud resources is reported and tracked. Simplifying the hybrid cloud journey The cloud journey can be complex. However, unified cloud management solutions as the TCS Cloud Exponence platform integrated with Azure ARC can make a difference. These allow businesses to take advantage of fully configurable functionalities that minimize the need for investments in third-party tools and centralized consoles for managing operations run on multiple cloud environments. This makes it easier for enterprises to get to hybrid cloud value faster. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Data Quality Management Ensures Data Protection

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withdraw prior consent, this repository must be scanned regularly for checking the availability of the latest consent for all applications and data stores. The scanning process can be automated using data profiling and can be used for sending appropriate notifications to concerned stakeholders. Privacy-safe data processing: Various de-identification techniques are used to protect sensitive data or PII. However, it is necessary to understand the associated risk of using masked data attribute values, like original values. A possible mechanism to address this requirement is data profiling, where de-identified data values are reconciled with the original data, using primary or unique identifiers, before sharing the de-identified information, so that the citizen's identity is not revealed. Relevant reconciliation reports act as evidence for future reference. The result of such reconciliations elevates the trust of organizations and citizens on the data de-identification process. Consent-based data sharing: The advent of digital transformation and automation has ushered in an era where the focus is on automating tasks, using automated workflows for data sharing. It is important to check if data sharing is being done in accordance with the received consent. This can be achieved through automated profiling of data requests against the central repository of consent. Subsequently, organizations can take appropriate measures to ensure data privacy, such as de-identification, before sharing or rejecting data requests. Purpose-driven and privacy-safe data provisioning: When organizations focus on data protection, it is important for them to identify the quality of data to be protected before data provisioning. They need to analyze if the data to be protected is consistent across multiple data stores and is relevant for de-identification and sharing. Organizations can perform this by profiling the data and correcting quality issues before the de-identification process, to ensure that the results of de-identification are desirable. Data retention: Organizations may need to archive some data to adhere to regulatory compliance processes, for a specific duration. This archived data may contain sensitive information. Inadvertent or malicious access to archived data can pose a serious data privacy-risk, so data profiling can be used to scan the archived data. This checks the existence of sensitive information beyond the required retention period. Data breach notification: One of the regulatory requirements of data protection is notifying citizens about breaches of PII, within the defined time. This is possible only if the citizen's information, such as name and contact details, is complete, accurate, up-to-date, and non-duplicated. Data profiling can be used to ascertain the quality, and subsequently, data quality issues can be fixed through data cleansing, standardization, enrichment, and data de-duplication. Organizations should connect with citizens to procure missing details. Data quality with data protection: a strong combination Data quality management plays a key role in the data protection regulatory compliance initiatives undertaken by organizations. Data privacy combined with data quality is a powerful accelerator for any enterprise transformation program. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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5-Phase Methodology for Data Anonymization

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industry solutions. It is a process of identifying personal details and replacing them with fictitious, but realistic values that preserve data utility. The next big hurdle was the implementation of anonymization across the enterprise. Implementing Data Anonymization – Challenges The key challenges can be categorized as follows: Five Phased Methodology for Data Anonymization Being a niche and new area, data anonymization should follow a phased approach for enterprise-wide implementation. TCS suggests a 'Five Phased Methodology' depicted as follows: Figure 1: Five Phased Methodology for Data Anonymization Preparation Phase The owner of the data privacy program initiates the project. The scope is derived by assessing applications in the IT landscape. Data privacy regulatory compliance is the key driver for the requirements list. The key activities are: Analysis Phase The implementation team follows the data privacy definition and work scope to perform the due diligence. The key activities are: Configuration Phase Data privacy implementation is a unique exercise for each enterprise. After data anonymization strategy is verified, rules are configured using the selected anonymization product. (Tip: A good data anonymization product should provide an automated and easy-to-use graphical interface for configuring the anonymization rules using built-in templates.) The key activities are: Execution Phase After data anonymization configuration is ready and verified, it is time for execution. The key activities are: Validation Phase Data validation is a mandatory step for checking sanctity of the masked target data environment – both for integrity of business rules and protection of personal details. The key activities are: Data Privacy Governance A system is bound to fall apart in the absence of good governance, despite a strong design. An established governance system ensures continuity of usual operations and continuous enhancements to keep the system relevant. Data privacy governance constitutes of the following components: Figure 2: Data Provisioning Process A centralized test data management team is preferred for implementing the data provisioning process, while the governing body ensures discipline through the set processes and usage of the tools. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

Toward Enhanced Cybersecurity of IoT Devices

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look for basic security assurance from their IoT vendor. Prior to vendor finalization, an organization should evaluate the vendor's IoT solutions against essential security parameters by: Common pitfalls to avoid when deploying IoT solutions Firstly, do not assume that an IoT hardware - running custom firmware or light weight service - would be immune to attacks or breaches because they have not been exploited yet. There have been instances where IoT devices were exploited because there were no proactive measures to detect and fix vulnerabilities. Secondly, do not solely rely on generic vulnerability scanner tools meant for IT systems to detect vulnerability in IoT devices. On the contrary, conform to testing methodology tailored for IoT devices and use specialized tools meant for IoT to ensure robust IoT security. The proactive approach to ensuring IoT security The threats to cybersecurity of IoT systems are real and on the rise. Therefore, it becomes imperative for IoT device vendors to introduce enhanced security features in their devices. Such features need to be consistent with the intended use, perceived threat, and the impact to the business, user or environment, if the device is compromised. Furthermore, the onus of ensuring that robust cybersecurity protocols are in place lies with the government as well. In February 2019, the European Telecommunications Standards Institute released the first globally applicable standard for consumer IoT security. In the US, one such protocol is the Internet of Things Cybersecurity Improvement Act of 2020, directing the National Institute of Standards and Technology to create minimum cybersecurity standards for those IoTs controlled or owned by the United States government. Implementing and enforcing such protocols would help countries across the globe to foster growth and ensure seamless connectivity for a better future. However, the onus of adherence to these regulations and ensuring IoT security cannot lie with the government or regulatory bodies alone. The IoT value chain is very intricate with a high degree of interdependence between all stakeholders. Every link in the chain, including the end-user, the IT team, IoT vendors and organizational stakeholders all represent potential vulnerability and are together responsible in ensuring IoT security. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Neural Manufacturing Drives the Future of the Paint and Coatings Industry

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demonstrate resilience, adaptability, and purpose-driven behaviors, all of which will drive intelligent and faster decision making. Emerging technologies like data analytics, artificial intelligence (AI) and machine learning (ML), blockchain, cloud, and more will a play crucial role in helping the industry cultivate these traits to transform their operations, offerings, and customer experience. A neural perspective on the paint and coatings value chain Neural capabilities will create exponential value across the value chain of the paint and coatings industry. For example, as the demand for eco-friendly coatings with smart features like anti-UV-ray, anti-corrosion, anti-fungal, and heat-resistant began to increase, major players in the industry have invested around 1 - 3.5% of their overall sales in R&D to develop innovative products and reduce the time to market, to capture higher market share. Neural traits developed by performing analytics in a connected ecosystem will speed up the development cycle by generating insights from customer data, identifying requirements, pain points, and user sentiments. With greater collaboration through cloud-based tools within and across organizations, institutes, laboratories, and startups, a partner ecosystem will evolve, where information on novel materials and research work can be accessed quickly. Besides, AI and ML technology can generate significant benefits in product development and testing. These technologies will assist in virtual product formulation by developing digital weather twins for paints. These digital twins can simulate the impact of environmental and other factors on the paint and coatings sector, thereby mitigating risks and reducing time, money, and effort to launch new products. We believe paint and coatings companies must focus on making their manufacturing operations flexible, agile, and resilient, especially after the pandemic, as reducing costs and improving productivity have become crucial to avoid squeezing margins. Smart factories equipped with a well-connected ecosystem of people, process, and technology impart a cognitive capability, where self-monitoring and controlling critical parameters by equipment make autonomous operations a reality. Paint and coatings manufacturers can also leverage AI and ML to receive intelligent and timely alerts on diagnostic, predictive, and prescriptive maintenance for improving machine availability, quality, and throughput. A good example is that of Asian Paints: they created a digital twin for production processes using AI on the data collected from various assets. Digitalization reduced the cycle time for the firm by 7%. The supply chain of paint and coatings is expensive and complex. Volatilities are further amplified by disruptions caused by price fluctuations, high shipping costs, longer lead times, shorter product life cycle, and more. To manage these challenges, manufacturers are adopting digital technologies across their supply chain to gain the much-needed agility and transparency in their operations. Supply chain visibility will ensure resilience, reduce variability, and enable quick and effective decision making, resulting in cost reduction and ensuring on-time delivery. Advanced analytics on external factors can predict price fluctuations and enable cognitive procurement. Technologies like the internet of things (IoT) and cloud computing can provide intelligent insights on real-time locations of resources, condition of vehicles, driver performance, and more. Technology like blockchain, thanks to its connected ecosystem, can provide transparency on financial transactions, material movement, and inventory stocks across the supply chain, which eliminates the possibility of fraud. Personalized customer experience is by far the most important element

impacting a customer's buying decision. Paint and coatings retailers need to invest judiciously in delivering unique brand experiences to customers. For example, retailers can create virtual store experiences by personalizing store ambience and product layout tailored to their customers' preferences. This is done using augmented, virtual, and extended reality. In addition, retailers can use AI and ML in neural networks to optimize discounts and prices offered to individual customers based on their preference and purchasing history, thus offering curated shopping experiences. The approach matters To embed neural traits in their business models and operations, paint and coatings manufacturers will need a focused, planned, and holistic approach to transform into a smart, agile, flexible, and resilient ecosystem. This ecosystem of people, process, and technology will need to connect, collaborate, and mature over time to enable manufacturers to achieve cognitive capabilities. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 =====================

Sneak Peek into Employee Emotions

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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. Blog Soumik Paul You have these already downloaded We have sent you a copy of the report to your email again. The success of any organization depends upon its management's vision and mission. And to meet their goals, they need productive and efficient workforce in place. Employee satisfaction plays a major role in creating a vibrant positive workplace. Employee engagement survey is one of the key approaches that organizations generally take to measure employee satisfaction. Employees are known to be the assets of any organization. So, it is necessary for any organization to listen to them to increase their productivity and efficiency, which in turn makes positive vibes to the organization. A carefully designed and conducted employee survey can reveal a great deal of information about employee perceptions that management can use to improve the workplace culture. Analysis and extraction of insights from the survey report is extremely necessary in today's world for any organization. If you do not follow your employee feedback and make changes accordingly in the workplace or take necessary actions, your organization will fail to make an impact. So, you should analyze how your employees are thinking about your organization. One option is to conduct employee survey. And HR people can check the feedback captured through the survey. But is it possible to go through each individual feedback from millions of reviews? For a human being, it's next to impossible to review different kinds of feedback and take a decision. Every organization would like to get rid of this situation and try to use a technique that would decrease their effort and time. Here Sentiment Analysis comes into the picture. What is sentiment analysis? Sentiment Analysis is a technique to analyze the sentiment from the sentences; it could be positive, negative, or neutral in general. It's also called opinion mining. It is playing a crucial role in research as well as commercial purpose to determine the attitude or the emotion of the writer. We are using Sentiment Analysis to reduce the time in checking every line of a review. Instead of that we are going to extract sentiment of every review to analyze the attitude of employees towards the organization. Analyzing those, necessary actions can be taken to make the organization more employee friendly. Organizations use sentiment analysis to get insight into their employees and set their HR strategies accordingly to improve their employee-centric services. Some important features of using sentiment analysis are: NLP-based approach To reduce human efforts to analyze employee reviews, artificial intelligence can be used to identify whether feedback is positive or negative. AI will also learn toxic words from the historical data and recommend a passage in carrying either positive feedback or negative based upon the feedback's word composition. This can be considered as a supervised learning problem where all historical data can be used to train the model. We can use any sequence-based supervised learning technique to train the models. Later, this trained model will be used to predict if a passage is carrying positive

feedback, negative feedback or even neutral. This NLP and ML- based approach will help any organization to reduce human interventions in reviewing every feedback, instead they will get sentiment of each review, and based on that they will take necessary strategies to make their services more employee focused. Conclusion Business is expanding, so is data. Without data we can't analyze our business bottlenecks, we can't point out those fields where we must put extra effort to make organization more employee friendly. Human intervention is good and error-less up to a certain level. But when it comes for millions of data, we do not have that many resources. So, we must rely upon AI-based Techniques. Most of the organizations, these days rely heavily on social media to improve the employee experience. So, Sentiment Analysis can be their weapon to adopt more employee-friendly business strategies. But we must keep in mind that this approach can cause error in some cases. It mainly occurs when we are trying to extract the sentiment of a sarcastic comment. Sometimes it classifies a comment as a positive, although it's negative by means as it involves sarcasm. In such cases we must rely upon manual effort. Automated Sentiment analysis tools are good up to a certain case, but we must use them wisely. Making this model a base, organization can upgrade this to real-time to gain most from it. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Nip Employee Attrition in the Bud

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Blog Vimal Mangeshkar You have these already downloaded We have sent you a copy of the report to your email again. Employee attrition or employee churn is one of the most serious threats that an organization faces against its growth and long term strategies, owing to its impact on work force and productivity, and subsequently the costs. High attrition influences detrimentally to an organization, as replacing key employees or business domain experts with niche competencies and skillsets is very difficult, also leading to increased hiring and training costs and besides the loss in revenue due to loss in productivity and morale. However, if there is a way to detect any probable instance of attrition, then the organization can take right measures at the right time to tackle the problem. Let's look at a machine learning (ML)-based model that can help determine the attrition probability of an employee and aid the organization to improve its work force productivity. Model building The Employee Attrition Prediction model provides foresight to human resources management (HRM) and organization leaders to facilitate talent retention, by predicting the employee attrition risk using machine learning techniques. The scope of the solution is to predict possible voluntary separation in an organization. Several HR management researches point out several causes for attrition, that can be factored and obtained from employee-level data. The identification of possible cases of attrition can be treated as a supervised learning problem where AI will learn from historical attrition dataset to understand the attrition pattern within the organization.Employee attribute classes such as employee demographics, experience, compensation and hike, leave behaviour, promotion and performance,employee feedback, organizational details like job grade, level, department etc can be considered to build this machine learning model. Any tree based algorithms can be used to train this machine learning model. Interpreting the model utility Unlike a general prediction model, the developed attrtion prediction model also captures and provides the most contributive attributes for attrition risk for every individual employees, beside predicting their attrition probability score. The display of the factors in decreasing order of the impact along with their specific values enhances the interpretability of the model's output, making it more useful and impactful towards the causal analysis of the attrition in an organization. Further, output analysis can help the management to find out the segments viz. departments or job levels within a sub department, in the organization with, greater risk of attrition and take necessary actions to solve the issue. Integration and benefits The Employee Attrition Prediction model can be deployed in a compatible module of any HCM application. To

enhance the utility of this solution, the attrition probability can be displayed against an employee's profile using an appropriate interface and be made available to the HR management. The most contributive factors and their respective values can be displayed to the HR managers in the form of an attrition prediction report. Thus, the organization can be able to tackle the problem of attrition, once they are made aware of the probable employees that are going to quit, and their specific responsible factors, and then take a specific pre-emptive action to abate the issue. This ML-driven model for identifying attrition risk can generate rapid outcomes post ingestion of appropriate training and prediction data. Due to the ability of continuous learning, the model can automatically train itself with incremental changes in data across time periods, without much manual intervention, once deployed. Being domain-independent, the solution can be used for different organizations, irrespective of the industry they belong, giving better decision-making capabilities to the management using the data-driven insights with interpretation of predicted results for attrition risk. Implications Employee attrition prediction with ML techniques have shown an evident impact in the overall improvement in the retention rate of an organization, wherein the organization benefits by early identification of the potential resigning employees, along with an understanding of the contributing factors. Such ML techniques make it possible for the HR management to address the employee-specific issues, ultimately boosting employee engagement and satisfaction, and leading to talent retention. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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5G and cloud edge are breaking the barrier to decision-making in capital markets

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be more reliable and realistic. The way ahead for 5G and cloud edge With the increased need for decentralized computing and lower latency in decision-making, both 5G and cloud edge are poised to significantly improve the performance of applications and enable huge amounts of data to be processed in real time. They also aid companies in maintaining data integrity, allowing them to derive reliable intelligence from data assets and make smarter decisions. Enabling a fast and accurate decision-making process in the capital markets industry will not only make the decision-making process efficient but also maximize the gains, thanks to fast access to a comprehensive range of services at the 5G edge. Enhancing Dealer Network Management with Master Data Management Overcoming Barriers to Gen AI Adoption The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 Ways to a Successful Cloud Governance Model

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the risk of internal user dissatisfaction, due to the increased touchpoints and complexity in the process. But cloud governance is as much about people as it is about processes and the right set of frameworks and tools. So, it is best to work on getting employees' buy-in through change management and upskilling activities across the organization. That's what we did at one large financial organization, when we helped them come up with the right hybrid cloud governance model. The challenge was to streamline the processes, which had too many touchpoints and a complicated approval mechanism leading to extremely lengthy process execution cycles and dissatisfaction among users. We helped them identify a simplified process with proper checks and balances, along with automation opportunities. We also helped them with right sizing and FinOps streamlining. The result? The client was able to implement a hybrid cloud governance strategy that improved their productivity by 40%, cost optimization by 50%, agility by 35%, compliance cycle time by 65%, and internal customer satisfaction by 30%. Companies that move to a hybrid cloud governance model can leverage these incentives. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 =======================

Exploring New Horizons in Functional Automation with AI

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automation as it does not go hand in hand with agile and DevOps because: 1. UI automation is a slow activity with complete dependency on the UI. Though codeless automation can quicken the development process, it's still fueled by significant human effort. 2. Automated scripts fail to operate even when small changes are made to the attributes of web elements due to a lack of self-healing processes. 3. Maintaining in-sprint automation in applications with fast-changing UIs and frequent builds have high failure rates. 4. In-sprint UI automation execution is difficult because user stories are delivered in the latter half of the sprint. An automation engineer does not have enough time to automate scenarios and execute them in the same sprint. These challenges increase human dependency, which in turn increase costs and reduce overall savings by automation. Augmenting Automation Testing with Digital Technologies Adoption of digital technologies has changed the face of the world in many ways and yet there are other possible outcomes of infusion of digital tech with any existing technology which could be a game changer. One of its application could be in automation space where we could expect the following benefits: A containerized, cloud-based, and on-demand engine can be deployed to run quality checks on applications and generate reports for human analysis. The Business Context By adopting similar approaches, our businesses can be offered as a holistic service rather than per resource basis service and with this, AI-driven testing can give rise to automation-as-a-service (AaaS), similar to platform-as-a-service (PaaS), infrastructure-as-a-service (IaaS), and software-as-a-service (SaaS). Clients may get benefits like faster time to market, early bug detection, faster quality analysis and checks keeping spirits of Agile and DevOps cycle high in Application development lifecycle instead of running over them to in rush of deployments with inferior quality checks. The organizations that have adopted AI-based testing have an edge over their competitors in automation services, as it helps them offer their customers deeper value. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Future-ready operations design tenets: Security, skillsets and partnerships

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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. As the 2021 TCS Global Leadership Study reports, just over half (51%) of those surveyed report collaborating with competitors. This reluctance will likely change as the benefits become more evident. Already the 'Leaders' (as identified in the study) are overwhelmingly more willing to collaborate with competitors than their counterparts (80% versus 23%). Case study: 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. Talent Transformation: A Priority for a Competitive Edge Building Resilient and Sustainable Global Supply Chains Generative AI in FP&A: Reimagining the Operating Model for Finance TCS Survey: Strategic Priorities for Futuristic Business Operations 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 =====================

Rapid standardization in clinical trials with metadata repository (MDR)

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55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Blog Charusheela Thakur You have these already downloaded We have sent you a copy of the report to your email again. The norms and mandates governing clinical trials are highly convoluted. After passing through multiple radars, a successful trial vouches the efficacy of medical devices or drugs that detect, diagnose, nourish, and treat. Strict mandates, geopolitical regulations etc., are therefore, obligatory across the trial process. To complicate it further, each organization follows its own standards while conducting the study. So, to simplify the diversity, stakeholders involved in the trial process formed industry consortiums that establish common standards for clinical trials. Standards alone, however, do not yield effort optimization. It requires a fully functional metadata repository (MDR) to connect all sources of truth across systems and enable reusability to make the standardization efforts a success. In this blog article, we will learn about the two broad challenges faced by the industry, and how a well-constructed MDR can tackle those. Standards and version updates Multiple initiatives by enterprises have resulted in the creation of various standards which are siloed and incoherent. They are maintained and published separately, for instance: Clinical Data Acquisition Standards Harmonization (CDASH) for source collection, Study Data Tabulation Model (SDTM) for submission data, Analysis Data Model (ADaM) for data analysis, and so on. The versioning of each of these standards is unsynchronized, which is worrisome since they are interlinked. For example, a new version of CDASH potentially may have a significant impact on SDTM. Analyzing updates at the study level is tedious and time-consuming, therefore detrimental when the objective is timely delivery. With every new release, variations in standards complicate matters where decisions about inclusion or exclusion of items in the new release are to be made. Version upgrading is a time-consuming and labor-intensive process which involves a lot of cross-functional stakeholders. In such cases, technology can help reduce the effort by providing user-friendly comparison reports and quickly resolve the versioning issues. Reusability and Governance The second key challenge faced in standardization is its reusability and governance aspect. Two drivers that would sustain and prolong the usage of standards are the scope of automation in reusing the standards and setting up studies faster and

deploying a robust governance framework. Standards implementation requires equal support from all users. Users typically exhibit reluctance or are complacent in using standards due to not paying attention to the frequent updates. Consequently, if the workflow and governance processes are not streamlined, maintaining standards would be cumbersome with every user deviating and carrying out their own activities. So how does MDR help? Let us look at a few ways MDR helps in overcoming the standardization challenges: A robust governance mechanism makes available all the necessary data points to the applicable owners for them to make informed decisions on whether to accept or reject a change. Conclusion Metadata standardization is one of the most required, in-demand, and popular initiatives to be undertaken, but it would lose its transformational impact if we are unable to realize its optimal value, something that the MDR can help us with. A well-designed functional MDR can overcome the existing challenges by not only centralizing metadata management but also facilitating automation and impact analysis. This foundation will enable the implementation of advanced techniques, like artificial intelligence, to identify related processes and enable rapid study setup. New Version of TCS' MRT Platform TCS' Advanced Drug Development wins India Pharma Award 2019 Empowering clinical data management Accelerating speed to market using Metadata Repository (MDR) 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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Explaining the Explainers: Why AI Needs Better Interpretation

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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. Jayashree Arunkumar You have these already downloaded We have sent you a copy of the report to your email again. With the availability of digital data increasing, artificial intelligence (AI) plays an important role in the critical aspects of productivity improvement, cost reduction, decision making, and customer-focused development of products and services for enterprises. The advent of deep learning techniques has improved the performance of AI solutions, but the lack of transparency in these models are obstacles in their acceptance, as well as in audit and compliance. The conventional machine learning (ML) models themselves are difficult to interpret when dealing with high dimensional data. Hence the term 'black boxes'—as they cannot explain why the system made those decisions. The need for explainable AI The need for explainability, therefore, cannot be stressed enough. In the financial sector, for example, the risks associated with such black box models can be a barrier to their adoption as they cannot be trusted by consumers, including the regulators in financial services. There are several recently developed techniques for explainable AI (XAI) that provide fairly good interpretations of the models' decisions. Even if the model is opaque, these techniques (such as, SHapley Additive exPlanations or SHAP and Local Interpretable Model-agnostic Explanations or LIME) can provide reasonable explanations based on surrogate linear models or attributions provided by the features' shapely values.   But is that good enough? The answer is 'no'. Most of the explainable AI techniques prevalent today provide outputs that can only be understood and analyzed by AI experts, data scientists, and probably, ML engineers. Other stakeholders including domain experts and business users of the decisions made by the models, are often unable to comprehend these explanations, trust the outcome, and derive value from these models. If, for example, the domain experts understand why the models made these decisions, they might be able to augment or improve these models with their expertise and experience. This would make the model more trustworthy and help in assessing its bias, fairness, and risks. Likewise, a business user might want to understand specific model decisions to know and understand the reasons behind them. Human-understandable explanations are therefore crucial to building transparency and trust in AI solutions. For instance, consider a retail bank deploying a machine learning model for home loan approval; the model would take the loan applicant's data as input and provide a decision on loan approval. The bank would then be keen to know how the model made those decisions, which model attributes have the highest weightage and importance, and whether there is

need to add or remove certain attributes to improve the performance of the model. On the other hand, the loan applicants would want to know why their loan was rejected and would demand a user-friendly interface through which they can question the model's decision. This could be web-based visualization, or better, an engaging conversation with the model that can help the user get better insights on the outcome. Comprehensible explanations for the common folk What does it take to provide explanations that humans can understand? One of the key considerations for this is to mimic human thinking and provide explanations in an approximate rather than a precise way. Consider this loan approval model—through the common prevailing methodologies in explainability techniques, the loan applicant would be informed that the top reasons for his loan rejection are his credit history (0), loan amount (XXXX), loan term (YY), and the applicant's income (ZZZ). A more helpful output would be to inform the loan applicants that their loans were rejected because of their poor credit history and high loan amount request; their income could probably be too low for the amount applied for. The users could also be informed that if they were to reduce the loan amount or get a co-applicant with a higher income, their application was more likely to get approved. This is called 'counterfactual explanations'—providing an explanation through a hypothetical scenario that contradicts the observed values and provides the user with what it takes to change the decision. This could be done with experimenting what-if scenarios for those features that can be worked upon to flip the decision. Communicating the results and associated explanations to the user in a human-friendly manner requires a channel like a chat interface. A chatbot could be enabled to use formatted response templates or natural language generation (NLG) techniques that can analyze the content of the explanations, derive the understanding with context, structure the narrative, and present the explanation information and recommendations in a language that humans find easy to understand. The benefits of explaining the explainers are Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 chaos engineering cuts technological risk

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resilience? Typically, different roles and teams under IT—such as application development, infrastructure and operations, testing and quality analysis, security, and site reliability—support and operationalize business systems. For a business to function seamlessly, these teams need to work together in harmony. In practice, we have seen these functions work in silos or with very limited interaction (for example, DevOps), but resilience, security, and performance are not considered integral to application development and delivery. There is need for a framework that can enable alliance between IT teams to proactively mitigate technological related risks. The chaos engineering framework bridges this gap. It allows IT teams to incorporate nonfunctional requirement ground up during application lifecycle. It enables them to test hypotheses or assumptions in the real world and check system resilience. The framework allows precise and measured amounts of failures and errors in the system, to improve business resilience. It enables organizations to prioritize business services that will benefit from improved resilience. It aids businesses to investigate vulnerabilities in the technology ecosystem and apply resilience patterns. Its gamut of capabilities include: Understanding of system modes and dependencies Monitoring, tracing, and observing behavior of IT systems Checking effectiveness of incident response process in case of emergencies Testing out stability patterns Identifying weakness and bugs that can cause business outages Performing blameless postmortems Chaos engineering experiments cannot be treated as another function of IT delivery. It involves a collaborative effort between different stakeholders (chaos specialists, production support, incident management, domain expert, testing expert, and DevOps teams) involved in application lifecycle and change in mindset. Adopting chaos engineering is a journey and it involves building competency in a structured and collaborative manner. Below is a sample maturity model to adopt chaos engineering. Organizations can start small in implementing chaos engineering framework. A typical chaos experiment process involves identifying, prioritizing, and defining a steady state of the business function where resilience is needed. A chaos team then identifies failure scenarios, monitors key metrics, defines the last radius of the experiment, gets a buy-in from the business, communicates to the stakeholders, and plans game day for resilience testing. On game day, the team conducts the experiment, and performs blameless incident analysis and a postmortem of the experiment. The chaos team then identifies the action and resilience pattern required for the resolution. As part of the next step, they coordinate with the team concerned to test and validate the resilience pattern in a test or preproduction environment, before applying the changes to the production environment, and plan for the next game day. There are many commercial and opensource tools available to conduct chaos experiments. Depending on the IT environment and internal capabilities, organizations can choose between commercial and opensource tools to carry out these experiments. Businesses should leverage chaos engineering to build resilience and deliver definitive value to customers. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

Creating a Secure Virtual Pharma Audit Ecosystem

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Virtual audits require sharing of confidential or controlled documents and source data during the pre-audit and audit phase, which is an extensive process and about two to three times more time consuming than the onsite audit. The exchange of documents related to procedures, materials, methods, equipment, and IT or software, should be recorded, secure, and easily traceable. Sometimes, it also requires a local affiliate to coordinate with the health authority to ensure the availability of documents in line with the local requirements. Designing the virtual environment for audits Securing the associated intellectual property rights and confidentiality creates an environment that provides access to all the parties involved. According to the pharmaceutical company's standards and the health authority requirements, a safe and secure site will enable ease of access and exchange of documents with the local affiliates and translation partners to prepare for an audit. The health authority stakeholders will also have access to the documents and folders related to the company's product or manufacturing site, to check the compliance status of the supporting source data. Leveraging the latest technology, access as per regulatory requirements, audit procedures, and the audit trail can be easily maintained and monitored. It can also be made available for further evaluation in conformity with the system validation requirements stated by the health authority. Creating a secure virtual audit ecosystem With the rise in virtual audits and related procedures in pharma industry, it is imperative to employ a cloud-based ecosystem with necessary security measures for conducting virtual audits. This will be used by both sponsor companies as well as multiple health authorities. It will reduce the load on internal IT teams of pharma companies and these virtual audits will be carried out at a third-party secure environment taking care of privacy and IP (intellectual property). Even in the post-pandemic phase, the concept of remote auditing can be embraced using available, secure, and sustainable technology. Management of such collaboration sites with utmost security and flexibility using latest technologies such as cloud, blockchain, virtual tours using handheld devices, will help the pharmaceutical industry to ensure faster processing of necessary audits for site approvals in the long run and will eventually lead to the availability of medicines for patients in need, on priority. The proposed viewpoint will be applicable for quality and regulatory-related audits, which enable site inspections specific to manufacturing, quality testing, stability testing, and warehouses. Virtual audit is one of the initiatives that can be adopted during a pandemic situation that will create a need for independent third-party sites to provide such services. The way forward The fundamental principles related to virtual audit are security and privacy, the use of technology and emphasis on the significance of virtual audits. New technologies will help get more insights into data, allowing auditors to play an active role. However, it does require the necessary cloud-based solution in an industry that is booming rapidly. The virtual audit concept majorly requires buy-in from leadership, especially while sharing confidential and secure data with external stakeholders, and for prioritization of such initiatives. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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Personalized Customer Experience – Real-Time Video Messaging

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centers, leading to customer dissatisfaction. Today's customers expect hyper-personalized experiences and tailored communication at every step of their journey. They need immediate and almost real-time, 24/7 support. Hence, there is a need for new virtual customer engagement tools and methods that are designed for the millennials. Why video messaging? In the age of constant media overload, video content has emerged as the most effective brand building and customer engagement method over the last decade. Videos score over other media by enabling a much deeper emotional connection with customers. Adding a touch of personalization and interactivity to videos makes them powerful tools for engaging with customers for longer durations. Video content in a website acts as a catalyst to attract more users and hence aids in higher conversion rates. As virtual customer engagement is the new norm, personalized video messages are increasingly being used to deliver a dynamic, hyper-personalized customer experience that contributes to brand loyalty and affinity. Popular video messaging application trends in insurance Most insurance companies use simple factsheets, app help videos, visual data, tips, etc., to educate customers about their products and services. Simplified information through a personalized video message leads to an engaging digital experience for insurance policyholders. Popular video messaging platforms including Idomoo and Vidyard provide personalized, real-time video solutions to insurance companies. Other solutions in the market offer personalized welcome videos, which explain policy details in a format that customers understand and enjoy during onboarding. Further, personalized videos act as trusted companions for customers struggling to initiate a claim during claim processing. A typical personalized video messaging solution overview A personalized video messaging solution can guide the customers by extracting the core message from any insurance-specific document and articulating it in an interactive video in real time, thereby simplifying information. It can read and simplify complex documents and personalize content for every customer with text-to-speech conversion capability. The output video can be rendered on various channels like web, mobile, chatbots, smart speakers, AR/VR/MR devices, etc., thereby providing an omnichannel experience. The input document can be in any format – PDF, Word, PPT, or an image – and should have insurance-specific details that abide by the insurance organization's regulations. Subsequently, the essential details are extracted using the intelligent document processing technique. The AI-ML engine then processes key information to arrive at a personalized output. This is used by the video processing engine to display real-time personalized videos for end users. Integrating call-to-action (CTA) buttons in the generated videos provides an added advantage. Customers can click the integrated CTA buttons to get answers to their queries, choose payment options and renew their policies. This helps to reduce the number of calls to contact centers and maximizes conversion rates. To improve accessibility, the generated video includes captions, a transcript, and an audio description. Hyper-personalized real-time video messaging will help reduce the inbound call volume to contact centers, thus improving customer satisfaction scores. Use cases Although the real-time personal video messaging solution is industry agnostic, there are a few indicative use cases from the insurance industry. The solution can be used to describe quotations, work orders, and new business that can help customers understand the coverage, the exclusions, applicable offerings or products

based on customer information, premiums and discounts applied, coverage and benefits, premium payment process, and other information. Hyper-personalized video messages can be sent to customers who are due for renewal. This helps the customers understand the policy details, renewal premiums, and applicable discounts. Conclusion With the pandemic accelerating digital transformation for the insurance industry, information simplification from huge and complex documents will be a game-changing experience for customers. To complement that, the video technology evolution acts as a catalyst for tailor-made virtual customer engagement, with simplified video snippets backed by AI- and ML-driven analytics. So, let's make insurance fun, engaging, and emphatic. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Open Banking and Latin America: A New Growth Opportunity

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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. Blog Sayantan Santra You have these already downloaded We have sent you a copy of the report to your email again. Open banking is a new financial services model wherein banks and other financial institutions share customers' consented financial data with third parties through open APIs to provide innovative financial products and experiences. There are three types of approaches for open banking implementation worldwide – prescriptive, market-driven, and facilitative. When it comes to Latin America, most countries in this region follow a prescriptive or regulatory-driven approach, with Brazil and Mexico becoming the pioneers in Latin America's open banking adoption. Open banking in Latin America The Central Bank of Brazil published the open banking regulations in April 2019 to reduce 'information asymmetry' and increase efficiency in the credit and payments market by promoting more competitive environments. Although influenced by the Australian Consumer Data Rights, Brazil's open banking specifications offer additional scope in payments, investments, insurance, corporate banking, and more. As per Mexico's Fintech law, all financial institutions must enable APIs to aggregate and share product or service data and customer transactional data with each other. In continuation, Mexico's National Banking and Securities Commission (CNBV) rolled out the initial open banking regulations in June 2020. Countries like Chile, Colombia, and Peru are also exploring different options for designing their open banking regulations and subsequent implementation. Key driving factors Many socioeconomic factors, along with rapid technological advancement, are driving the adoption of open banking in Latin America, and this includes: Financial inclusion: Financial awareness and government encouragement push a large section of the population towards financial accounts and digital wallets. This new userbase creates a unique opportunity for financial institutions to expand their reach and explore new revenue streams. Adoption of technology: About 64% of Latin America's population is expected to have mobile internet access by 2025. Broader usage of smartphones with easily accessible internet drives open banking adoption as financial institutions can now connect with larger sections of the population through their digital offerings. Further, financial institutions are investing in digital technologies like cloud, artificial intelligence (AI), and machine learning (ML) heavily, which propels the rapid development of customer-centric products and services. Rise of the middle-class population: Economic expansion and job creation are contributing to an increase in the middle-class population in Latin America. This prosperous and growing middle-class population is always looking for products and options for financial security and freedom, which creates a growth opportunity for financial institutions. Innovative ecosystem: The Latin American fintech landscape is growing rapidly, with Brazil alone expanding at approximately 300% (2017-2020). In Brazil, the number of fintech institutions increased from 244 in 2017 to 771 in 2020. This healthy, startup-friendly environment provides a perfect launchpad for innovative financial products and solutions in the region. Benefits Open banking empowers consumers to make the most out of the

data managed within a financial institution's repository. The benefits of open banking can be measured in different dimensions. Based on early trends, the following are some of the benefits that are observed: Supreme digital payment experience: Digital and contactless payments are gaining momentum in Latin America, especially due to the COVID-19 pandemic. As per open banking regulation, payment initiation service providers (PISP) are helping consumers to initiate payments without directly managing funds or transaction accounts. PISPs like UnDosTres and Cuenca are providing frictionless customer experiences and reducing payment transaction costs. Digital economy: Open banking promotes financial inclusion and can be used as an opportunity to spread financial services to larger sections of the population. Financial inclusion will be a key factor in the economic response to the COVID-19 pandemic. Digitalization of the financial infrastructure will help governments in Latin American countries identify, plan, and distribute financial aid in a more organized manner.   Innovative financial products and services: Open banking promotes competitiveness and innovation. This creative ecosystem not only leads to new products and supreme customer experience but also generates new employment opportunities, with more choices and convenience for the end customer. Efficient data sharing: Regulatory-driven open banking implementation ensures efficiency in data and information sharing, as all participants can follow the same standards and guidelines. Way forward Open banking principles can be extended to an industry-agnostic data-sharing framework and can be used as a building block for an ecosystem-based business model. This trend of blurring industry boundaries will create opportunities for innovative solutions and propositions like the 'SuperApp' where a single platform can be used for multiple services, thereby providing a frictionless user experience. However, the success of open banking in any geography depends on its adoption, where customer awareness is a key driver. Government authorities and financial institutions should dedicate resources to educating customers and increasing awareness. The pandemic has pushed consumers to embrace digital channels more than traditional cash-based channels. This change in consumer behavior will accelerate open banking adoption, making it one of the cornerstones of the digital economy. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 Digital Future for a Leading Insurance Firm

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emerged to manage business and customer needs. "There were more than 40 source systems that were feeding through different interfaces in the finance function," explains Roussou. "We saw that we were still doing a lot of manual controls." With these outdated legacy systems standing in the way of progress, Athora Netherlands and TCS set to work on a business transformation journey. The program was built on the shared belief that a digital core at the heart of the business was the only way the company could meet its goal of better serving its customers and the communities in which it operates. "The legacy was at the heart of the business," says Rohit Dass, from TCS Europe's Financial Services and Insurance Benelux division. "It was built for a different era. But things have changed, because of the expectations of the customer and the volumes of data available." Future-proofing business operations The business transformation journey at Athora Netherlands is a three-stage process. Arunava A. Chakrabarty heads the Software as a Service Business Development and Strategy for TCS in the UK and Europe. He explains how the process is moving ahead. "For phase one of the program, we decided to move the ledger systems into the Oracle Financials Cloud. We did a complete redesign of the finance business function," he says, creating "a future-oriented system that gives a single version of the truth and, more importantly, a 360-degree view of the finance ecosystem". Phase two is already underway, explains Roussou. "That's about rerouting all the source systems towards the cloud. Part three will be putting the other finance capabilities and automation on that new cloud." The cloud infrastructure at Athora Netherlands is based on the Oracle Financials Cloud. Further AI and machine learning systems running alongside agile business strategies all come together to revolutionize operations. The benefits of business transformation The introduction of the cloud-based digital core at Athora Netherlands is already delivering measurable benefits. Chakrabarty notes that productivity is up by between 30–38%. Dass says AI and machine learning will free up underwriters who are still doing some manual tasks as legacy systems are being phased out. In the coming months and years, Roussou sees his staff, "being more in a monitoring role and also being able to spend more time analyzing the numbers instead of production of the numbers." With the new systems being updated quarterly, Chakrabarty says efficiencies will continue to grow. "Once you start using the system for a couple of years, productivity will grow by more than 55% because the system is getting smarter and smarter and helping you work in a smarter ecosystem." Rising to the challenge of the pandemic A remarkable feature of the transformation journey at Athora Netherlands is that much of it took place with the world in the grip of the coronavirus pandemic. In March 2020, the Netherlands went into lockdown and much of the world followed. "We did everything in a complete remote fashion," says Chakrabarty, "and still we ended up doing everything on time and on budget." Reflecting on the huge efforts of all stakeholders to keep the project on track, he added: "Life is a journey with problems to solve, lessons to learn and experiences to cherish." Transforming legacy with technology The partnership between TCS and Athora Netherlands has evolved significantly over the last three years. Operating in line with our shared values and beliefs, we have transformed legacy systems that were built for a business founded in a different age. Athora Netherlands has a proud history as one of the founders of the modern European insurance industry. It now has a secure future too, built upon technology platforms that

will autonomously learn and adapt as the needs of its customers and communities change The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ========================

UI and UX Modernization – Totally Worth the Investment

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While UI refers to the visual layout of an application and uses screen elements such as textboxes, images. and drop-downs, UX involves an intuitive arrangement of UI elements to facilitate easier navigation and accessibility of the web application. While a good UI appeals aesthetically to users, an effective UX offers the user a host of benefits such as time saving, productivity gain, and ease of operation. Evolving business needs have made digital transformation a necessity, and UI and UX are key areas for legacy transformation. While legacy applications provide stability, they are cumbersome and fail to provide a favorable user-experience. They lack flexibility and adaptability in catering to ever-changing business needs and become redundant with time. The benefits of using a good UI and UX design are manifold and have a cascading effect on business. Some of the key benefits are: While there are multiple benefits of using the new UI and UX, there are some shortcomings too, that need to be analyzed, such as: UI and UX Modernization – User Experience and Complexity UI and UX modernization approaches – Re-engineering vs one to one conversion While modernizing a legacy application, two major concerns encountered are the cost of re-engineering and the cost of training to facilitate seamless adoption. One-to-one conversion   In legacy UI modernization, features of the UI are migrated to a new web technology as a one-to-one conversion. The UI for source and target applications are perceived as mirror images of each other, with minimal or no changes, the focus being technology migration. Since the status-quo is maintained on the layout and design of the interface, the UX remains the same. A product-based approach that can reverse engineer legacy source code and convert UI to new technologies may be leveraged to accelerate the one-to-one technology conversion. Staged re-engineering and re-design In this approach, end users are shown the one-on-one conversion of the application and the new UI and UX with modern web-elements. The new UI and UX is developed for redressing the various pain points of the legacy system and is presented to the end-users, highlighting the ease of use. At this stage, various model-driven tools offering visual modeling, reverse engineering (from wireframes to create a working UI), and low code products (which help in dragging and dropping of UI and UX designs) are leveraged to accelerate the UI and UX development process. Since a consultative approach is used, the feedback of target users is captured in terms of working beta applications. Modernization of UI and UX is challenging, and it seems daunting when viewed vis-à-vis a stable and running UI. However, considering that the benefits outweigh the challenges, UI and UX modernization is the way forward. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

US AML Act 2020 – What it Means to Financial Institutions?

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priorities every six months starting from June 2021. On June 30, 2021, the first version of the national priorities were published with a list of crimes to be prioritized. In line with the regulatory process for the new beneficial ownership reporting requirement, FinCEN must build and maintain technical infrastructure to store and retrieve beneficial ownership data of all entities registered in the US. That said, FinCEN must modernize its technology infrastructure to include emerging trends like virtual currencies and alternate payment methodologies to contain crimes pertaining to money laundering. To further ensure the quality of reporting, FinCEN needs to review and revise the current currency transaction report (CTR) and suspicious activity report (SAR) requirements and share constructive feedback with the financial institutions reported on the SARs. With the increased power, FinCEN may request records of the correspondent accounts held in the US while issuing subpoenas to foreign financial institutions (FFI). As part of the changes in the AMLA, FinCEN launched a pilot program to share SAR insights with foreign affiliates and branches of the financial institutions, excluding the jurisdictions that sponsor terrorism. How the AMLA matters to financial institutions Though the AMLA focuses more on strengthening the governing bodies in terms of their governance controls, the key impact of the compliance program on financial institutions will include the following aspects: All the aspects listed above will have huge implications on the technology environment that financial institutions have built for FCC compliance. To meet the increasing expectations of the AMLA, financial institutions must evaluate and enhance their infrastructure landscape by implementing robust controls and technologies like analytics, AI, and automation. The way forward for financial institutions While financial institutions are already struggling to control their costs of compliance, these additional requirements demanded by the AMLA will increase the burden proportionately. Here are a few solutions that financial institutions can adopt proactively to balance compliance adherence and costs. In addition to the above, there is a plethora of solutions that financial institutions can adopt to meet the changes – in the wake of the AMLA – to bring in control and governance in the compliance program. Undoubtedly, the best way forward for financial institutions is proactive preparedness to handle the changes well ahead of the timelines and adapt in the most effective and cost-efficient way. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 Diversity and Inclusion Drove TCS during the Pandemic

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an organisation provide the much-needed strength at critical times. "TCS UK and Ireland has achieved the highest satisfaction and engagement rate for the last 13 years among different geographical units within TCS," says Ramkumar Chandrasekaran, HR director, TCS UK and Ireland. "These awards have also brought a lot of awareness about the initiatives and visibility to our role models." Ecosystems for inclusion This year, more than 10 award categories recognised achievements, including the most impactful diversity and inclusion initiatives, community champions and inclusive accounts — as well as inclusive leadership. In a year marked with anxiety and separation, however, supportive employee networks were also firmly in the spotlight. "It started with a very small network of people who are single-handedly managing their children and managing all the challenges," explains Rasika Sangra, co-chair of UNO Parenting and the winner of the Outstanding Employee Network of the Year award. UNO Parenting was set up as a network for single parents in TCS. It provides one-to-one confidential advice, and is a supportive and safe community that offers weekly virtual coffee breaks for members, who are offered HR interventions specific to their needs. This network became especially relevant during the lockdown as all working parents were hit with doing two full-time jobs at the same time – looking after their children and doing office work. However, single parents faced the additional pressure of childcare and work all on their own, often not having the option to 'leave' the workplace as they were the income earners. This has led to increased pressure, stress, and other health issues for single parents, in particular single working mothers, who make up 90% of the single parents in the UK. "An inclusive team brings different cultural beliefs, different ideas," says Rachel Langham, UNO co-chair. "If you have all of these in a group, you suddenly find yourself with a massive amount of strength in that group, rather than a weakness." Not alone According to the UK's Office for National Statistics, the proportion of people showing moderate to severe symptoms of depression in England and Wales following the first COVID-19 lockdown doubled to reach 19%. Issues like mental health are top of the wellbeing agenda, and giving everyone a safe space to talk openly, but in confidence, affects not only our work selves, but has an impact on our personal lives, too. This was the world in which another award-winning network, TCS Minds, was born. "Our aim was to address and improve the mental health of our employees by breaking barriers and raising awareness," says Sarah Mason, who helps run the network. "Winning the award shows that what we stand for is also recognised." This recognition extends to those who have supported inclusive learning – a key focus for TCS, which made its TCS iON™ education platform free for schools during the pandemic. The Inclusive Learning project – the winner of TCS' Impactful Inclusion and Diversity Initiative award - was set up to focus on ensuring that the strategic digital upskilling initiatives left no one behind. Through group learning and a unique reward and recognition mechanism, the Inclusive Learning initiative ensured that underrepresented employee groups and women were engaged in the learning agenda and continued to stay relevant from a skills perspective. It has helped TCS UK and Ireland engage 95% of underrepresented employee groups and 97% of women in competency building in the last year. Strengthening resilience TCS is mindful of the big picture. As an organisation with more than half a million staff globally, and more than 18,000 in the UK, maintaining a

cohesive and supportive community is vital. Inclusion initiatives, including the focus on D&I, appear to be succeeding. Almost all (95%) respondents to a recent TCS Employee Network members survey reported that membership of TCS networks had boosted both their productivity and sense of belonging and company engagement. "Our awards have fostered a healthy competition among different departments to contribute to D&I initiatives more effectively," says Chandrasekaran. "As a result of this, the membership of our employee networks increased by 50% last year and the leadership involvement in our inclusion initiatives has also increased drastically." People power In recent years, evidence has grown of the potential of technology to be an ally of diversity in the workplace. Shipping company Maersk has used online games to encourage hiring managers to avoid cognitive bias during recruitment. There is also growing interest in the potential of anti-bias AI to assist in human capital management (HCM). However, TCS' experience also shows that individuals – and the teams they're part of – should be at the heart of any D&I strategy to build a more inclusive workplace. The real diversity and inclusion meaning seems to be people. As the UK and Ireland enter an uncertain post-pandemic chapter, the value of supportive workplaces looks likely to grow. As Chandrasekaran puts it, "More diverse, more inclusive teams mean a stronger TCS." The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Improve data quality to enhance explainability of artificial intelligence

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Blog Dr. P.H. Anantha Desik You have these already downloaded We have sent you a copy of the report to your email again. Today, the use of artificial intelligence (AI) is so widespread that it encapsulates various domains, directly and indirectly, making a significant difference in almost all fields of work. AI applications are used in wide-ranging domains such as security, finance, healthcare, medicine, and criminal justice. Successful AI-based models have become increasingly complex and are difficult to express in easily understandable human terms, adversely affecting the adoption of AI models. AI model explainability depends on the quality of the data. If the data is not qualitatively rich, it will result in inaccurate insights, leading to unpredictable decisions in human context models. Accuracy and interpretability in AI AI model algorithms are classified based on the extent to which they can be interpreted or on the degree of accuracy. While linear and smooth relationship models such as classification, linear regression, decision trees, and K-Nearest Neighborhood (KNN), are easily interpretable, they are less accurate. On the other hand, support vector machines, random forest, and boosting algorithms are less interpretable but highly accurate. Neural network models are highly accurate but less interpretable. It has been observed that medium and less interpretable models require more explainability and typically use more explainable tools and frameworks. However, much depends on the data quality of the model being used or exposed. AI explainability models This has two approaches, model-based (where interpretable ML models are built), and post-hoc (where derived explanation is used for complex models). The model-based approach is linear, based more on input and output explainability. The post-hoc approach is either not known or a known design, based on data and its relationships. Model explainability approaches can further be categorized as model-agnostic, applicable to all model types, and model-specific, applicable only to specific models. Explainable AI depends on data types such as image, text, numeric, and audio and on explanation types such as visual, data points, and feature importance. These parameters for explainability can be mapped, derived, and processed from the original data types, parameters, distributions, and relations of the model approach. All depends on the quality and trustworthiness of the data, since without data, there is no explainability. Explainability and interpretability are interchangeably used in

the basic models of AI explainability. In order to ensure fair explainability for complex models, both interpretability and fidelity are required. Fidelity refers to accurate, elaborate descriptions of the models, while interpretability provides a single rationale of input and output relationships in a compact model form. Fidelity provides sufficient and truthful information for completeness of model explainability. AI dependence on data quality Both the model and post-hoc approaches of explainability depend on data inputs, feature importance, predictions, and business rules. Explainability depends on the extent to which the data is qualitative, quantitative, or biased for the AI model. Data patterns are based on data quality and relations. Low data quality leads to a skewed model and incorrect AI model explainability, adversely impacting human belief in the models. AI models adhere to data quality of different dimensions such as accuracy, relevance, completeness, and constituency in data standardization. There are separately defined metrics to measure trustworthiness before considering data for the AI model data bias plays an important role for obtaining good data quality and for model explainability to remain unaffected in both model and post-hoc approaches. If it is not maintained, the impact is high which skews the model's outcomes. AI model development generally has a sequential approach for data processing, involving data operations ranging from treatment and wrangling to model building. It is important to capture the logs for data changes and distribution since they are vital for post transformation explainability, after model building. Data engineering logs play a significant role in the explainability of the data type, relations, data patterns, and changes in the post-hoc model. If data quality issues are not addressed initially, they can snowball into larger issues during the successive processes, impacting explainability, human decisions, and society at large. AI model explainability is important for humans to understand and take decisions based on data while data quality is crucial in providing fair explainability of solutions. Research is ongoing to identify new explainability tools for complex AI models, as this will directly impact data quality, associated challenges and the way forward in overcoming these hurdles in AI model adoptability for human application. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Agile Adoption in Traditional Enterprises - Key Considerations

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roadmaps, and unclear vision were some of the common indications of a failed attempt. Management against leadership A common trait demonstrated by the successful organizations is their ability to streamline efficiency with experience. The driving factor for this efficiency is an organizational structure, where management plays a pivotal role. A manager in a traditional organization plays the role of a coordinator and supervisor. In contrast to a manager, a leader in an agile setup is a facilitator who drives the agile culture, leads by example and thrives on collaboration rather than organizational hierarchy. However, agile does not obviate the role of managers. The clash between the old organizational hierarchy and the agile role leads to several challenges for traditional organizations, leading to a collapse in their agile team structure. However, this can be avoided by endorsing extensive team structuring exercises. Task against vision The traditional organizations generally have large teams with each of the members performing dedicated tasks assigned to them, one at a time, enabling managers to monitor the work. On the other hand, agile endorses flow of information and ideas rather than identifying and assigning tasks. An agile work environment encourages creativity where team members can freely share their thoughts and ideas. It naturally involves self-forming teams, where the team members have a common vision and a clear idea of how they can contribute towards it. When task assignment creeps in gradually, it distorts the core idea of agile. Formal communication against efficient collaboration Traditionally, teams focus on formal communication through documents, e-mails, and so on due to the established culture of written communication. However, traditional ways of communication are not always effective. The agile way of working recommends leveraging collaboration platform tools, applications, and in-person communication for expediting progress. Teams adopting agile at a grass root level need to nurture collaboration and trust among their members. This approach boosts the team's morale and openness, bringing efficiency in operations. Congregation against Focus The agile methodology recommends focused meetings with a specific agenda, which are strictly timeboxed. This enables increased participation, quality conversations and better decision making. The tendency to dilute the agenda of meetings with an intent to do more in less time is a common pitfall. Traditional meetings with large congregations and diverse objectives need to be avoided. Responsibility against ownership In the traditional style of working, team members are entrusted with some tasks irrespective of their interest areas. This style of working is detrimental to an agile team. The agile team members feel a sense of ownership and take pride in their contribution towards a common vision. A switch from the traditional to an agile mindset can alter an employee's attitude towards work, which in turn can profoundly boost an organization's performance. Encouraging experimentation The agile culture encompasses experimentation, exploration, acceptance of failure and a corrective mechanism as an iterative process, while stressing on the importance of timely and quality deliverables. Traditional against agile culture The preceding pitfalls are nothing but consequences of traditional organizational culture. The organizations need to understand that the agile way of working is intrinsic and is not just about achieving targets. Significant cultural changes, across an organization, rooted in openness, transparency, courage, and mutual trust serve as the stepping-stones to a successful agile adoption. Striking the balance Agile can be a successful way of organizing people and

projects, but it is not a panacea for project management. The organizations aspiring to adopt agile must be clear on how well they can tailor it according to their needs without compromising their values. Teams must be committed to undergo a significant cultural metamorphosis driven by a clear vision, with an inclination towards collaboration and experimentation. A paradigm shift driven by a strong leadership is the recipe to transform a traditional team into an agile team, without making it fragile. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Working From Home Has Changed Everything

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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. Blog Fin Kavanagh You have these already downloaded We have sent you a copy of the report to your email again. It's now almost two years since COVID-19 entered our lives. Those two years have changed the way we work forever. Some are still working from home (WFH) while others have switched to a hybrid work routine. Full-time work in the office is a reality once again for some, but it's unlikely to become the norm. It's safe to say that working from home has changed almost everything we took for granted about work, and that presents challenges for leaders and workers alike. Shaping the workplace of the future The impact of the switch to remote working was discussed at the 2021 Drucker Forum, which was held in Vienna, Austria, with some delegates attending in person, and others via the now familiar Zoom platform. Andrew Hill, Associate Editor of the Financial Times, chaired a panel entitled How Work From Home has Changed Everything. He opened the conversation by asking delegates about their own experiences of WFH and how they saw the future of work evolving. Ashok Krish is Global Head of Digital Workplace at Tata Consultancy Services (TCS). He told the panel that the workplace of the future has yet to be fully defined but said some new parameters will be required to shape the future of work. Krish expects that those staff who do go back to the office will only spend around 25-30% of their working time there, and that time, he said, should be focused on tasks that really benefit from face-to-face human interaction. With the prospect of workers spending up to 70% of their working time away from a formal place of work, Christian Stadler, Professor of Strategic Management at Warwick Business School, raised the question of maintaining staff motivation. Describing how he himself had experienced a disconnect from work during the pandemic he told the panel, "I think many people ask themselves, and companies ask themselves, how can you keep people engaged around big goals of an organization now?" He emphasized the importance of using digital tools to keep employees involved in strategic decision-making to break any sense of isolation from the business. Continuing on the theme of how, rather than where, people work, Krish explained how his team at TCS has been developing the concept of leveraging a human talent cloud, a federated, borderless and self-governed workplace. He gave the panel an example of how this could work. "You have to look at work in the sense of a spectrum, from things that require deep personal focus and individual skill, to aspects of work that require collaboration. And depending on where you are in the spectrum, the talent for that work might essentially be in a talent cloud, meaning that I could get an AI engineer in Manila, Philippines or in Montevideo, Uruguay – it doesn't really matter. They can do their work independently." Krish told the Drucker Forum that the pandemic had clearly shown which kind of work can be done remotely – and which can't. "Individual productivity seemed to work," he said, "but what did not work is the ability to get together and creatively brainstorm and that I think significantly affected a lot of agility in decision-making. "We did some interesting analytics and found that about 70% of all aggregate meeting time was low-quality, determined by whether people were browsing or doing something else when a meeting was going on." Trust, empathy and leadership Working from home offers countless distractions. Traditional work schedules can be disrupted by home-schooling, childcare, and other less necessary tasks. All of this raises the

question of trust. Speaking alongside Krish on the Drucker Forum panel, Mickael Locoh, VP Southern Europe and Africa at Steelcase, said, "The power has shifted to employees," who now ask about the company's work-from-home policy in recruitment interviews. Locoh believes WFH is here to stay, within a hybrid system, and that leaders need to adapt to the new reality. "It means that from a leadership perspective, there is a more empathic style. The notion of trust needs to be enhanced." Christian Stadler told the panel that leaders will need to carefully manage the way in which hybrid working evolves in their organizations. After citing his own challenging experience of trying to teach a mix of remote and in-classroom students simultaneously, he said, "I think experimentation is one of the smartest ways for organizations to figure out what is the best way to move forward." Data gathered from these experiments, combined with input from employees would lead to the best outcomes, he added. Building on the themes of Locoh and Stadler, fellow panelist Emmanuelle Duez, management consultant and CEO at The Boson Project, said, the workplace transition we are seeing is an opportunity for leaders to define the purpose of their organizations. "We have seen lots of executive committees asking themselves, what do we believe in? How do we want to work for the future? What kind of work philosophy? Do we want to promote your work in our company?" There is now, she told the panel, "The necessity for leaders and for employees to leverage their convictions... in order to project themselves into the future." Defining work in a post-pandemic future The evolution of the workplace which was triggered by the pandemic still has some way to go. All the speakers on this Drucker Forum panel agreed that the future would be hybrid, but what that would look like for different organizations is still not clear. Even the meaning of what it is to work is being re-evaluated. "First and foremost, [work] is defined as something that a machine cannot do," said Krish. "Our view now is that if it can be done by a machine, if it can be done by AI, by automation, I don't think an employee has any business doing it, because I think it's unfair to them in the sense that it's going to be obsolete. "On the other end of the spectrum, I increasingly see the need for a hybrid strategy to bring people together for this to be practical." In a recent article for the World Economic Forum, Krish described a future of work in which employees and managers "must wake up every day and reinvent what work means," and find a way to stay happy while doing it. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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might have done at previous employers. What's more, you will be able to see how your individual work will have a bigger impact, not just in business but in the community — locally and globally. Our ambition is for all employees to feel that "It means more" to work at TCS. Make your work count Throughout the pandemic, we have continued to recruit and invest in our people — because we believe in them. They're ambitious and hardworking, and we make sure they are supported, inspired, and valued. They're also rewarded; and they are recognised. We've got their backs as much as they have ours. Every employee is an integral member of our global workforce which is united by our common purpose and shared values. We know that, while many employers strive to create a corporate culture such as ours, the TCS 'feel' is unique among tech career opportunities in the sector. Inclusive, collaborative, and supportive are not just words or ideals for us. Talk to any TCSer and they will tell you that we all live them. That's why people stay with us for a long time. It's one of the reasons we've recently been recognised as among the top 10 Best Big Companies to work for in the UK. Purpose and meaning Our ambitions don't end there: we have aggressive growth targets. Over the next decade,. This means winning more clients, covering more ground and expanding our teams across the globe, with even more IT career opportunities around an increasing variety of technologies. From developers to tech leaders, graduates to senior hires — and more besides — we are always looking for the high-quality digital professionals that will enable us to achieve our vision for TCS: a company that pursues a bigger purpose, and a team for whom this work carries more meaning The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Enriching Dutch Driving Licensor's IT Landscape

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the latest news about TCS in our Newsroom TCS works hand in hand with world-leading investors. Rohit Patnekar Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Blog Rohit Patnekar You have these already downloaded We have sent you a copy of the report to your email again. At the Centraal Bureau Rijvaardigheidsbewijzen (CBR), the Dutch Central office of Driving Certification, more than 1,600 professionals are committed to driving and road safety in the Netherlands daily. "People come here for a driver's license, but we are also responsible for the examination of pilots or skippers on inland shipping. In total, we take up to 1.5 million exams every year. In addition, more than 8,000 driving schools are registered with the CBR and we have to deal with chain partners such as the police," says Bob van Graft, Chief Information Officer at the CBR, who is responsible for a team of 120 information technology (IT) professionals. For the CBR, the technological developments follow each other at a rapid pace. Not only in services to customers and partners, but also in the field of driving and examination itself. Van Graft explains: "At the moment, the examiner is the most important part of our services. But we see that technology in the car, such as the use of sensors and camera images, is increasingly playing a role. That's the future. In the future, that car will probably be better able to predict whether an exam candidate is suitable to drive a car than the examiner, because he only has a snapshot at that moment." Van Graft started at the CBR in March 2020 and faced several challenges. "The biggest problem when I came in was a huge waiting list, a backlog of applications for renewals of the driver's licences of people over the age of 75. Politics was involved; and society was really eager for a solution." "This backlog was partly due to the system not performing well because the infrastructure could not actually cope. First, we invested in the infrastructure—the renewal of the server and storage environment. This gave us a much more robust system within four months," he added. Ensuring continuity Van Graft also wanted to simplify the management of CBR's IT landscape. The goals were to reduce management costs and guarantee continuity, both in terms of retaining knowledge and ensuring that the systems could meet future requirements. "In 2017, a new system was chosen for the 'Fitness to Drive' division – an IBM environment with

very specialist software. When I joined here, I had only two internal employees running the programme but over 50 externals. This meant that there was little knowledge assurance in our own organization, and that carrying out management and maintenance could also become a problem in the future. That is why we started looking at partners in the market who could help and support us in this," says Van Graft. After a tender, TCS was chosen. "Of course, we focused on the knowledge and skills of the parties who were tendering. TCS was able to demonstrate very clearly that it had this expertise in-house. "Together with TCS, a transition plan was then made which started running from day one. Initially, the people from TCS got acquainted with the organization, the systems and the strategy of the CBR. It took us three months, and from January [2021] we turned that around and TCS actually came into the lead," explains Van Graft. TCS first optimized the existing code, allowing systems to work faster and more effectively. Thanks to the resulting performance improvements, there is now extra capacity to introduce new functionality, so that the user benefits more from the system, all without making additional investments in the infrastructure. Resilient Now that the infrastructure has been improved to allow the CBR's 24-hour service to take place in the best possible way, Van Graft's team is only at the beginning. "We're actually going to do two important things toward(s) improving our automation landscape. On the one hand, we will make more use of software-as-a-service, for example, for a planning system. On the other hand, we will use API management to improve the exchange of information with supply/value chain partners. And, of course, we are constantly alert to ransomware and cybersecurity. It is important that our systems are resilient to these types of attacks," he said. What Van Graft values most about the collaboration with TCS is that it continuously comes up with proposals for improvements in the IT landscape, "not only in the field of applications themselves, but also, for example, in the areas of security or low code." "So, TCS is not only a party that ensures that the application landscape is taken to a higher level, but they think along with the organization. How can we further improve the services of the CBR? How are we going to improve sustainability? You're taken into a community, into developments, that we wouldn't normally see." What exactly will the future look like? "Something is for sure. Technology, laws, regulations and support in the society, all determine where we go. As CBR, we are constantly working to respond to those requirements and wishes. For this, it is essential that the systems can move just as flexibly and that we therefore indirectly make an enormous contribution to road safety in the Netherlands," concludes Van Graft. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Sustainability: How Digital Tech is Transforming German Companies

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positioning sustainability at the core of a company. Remodeling businesses around sustainability opens the possibility to drive revenue, and by making this shift, businesses can ensure that purpose and profitability become intrinsic. Top priority, however, is making sure that these new business models focus heavily on the deployment of new technologies. Use of AI varies across industries While venturing into new technological territory can bring a company far closer to sustainability goals, AI, IoT, and other digital technologies can accelerate and improve businesses across all functions. Despite this, the percentage of companies open to using AI is only 55% — a decrease of two percentage points from 2020. Still, at 63%, twice as many companies as last year predicted that AI skills would be the most important in 10 years' time. Although the percentage of open-mindedness to AI has fallen slightly, there has nevertheless been some progress made. For instance, 22% of organizations in both the mechanical and manufacturing industry and the automotive industry are already using AI. At 19% and 16% respectively, the chemical and pharmaceutical industry and the financial sector are also above average for their use of AI. Interestingly, the percentage of companies in each industry who are open to AI does not immediately translate to the rate of use. The information and communication technology sector boasts a high percentage of AI acceptance, despite only eight percent of companies using it. These numbers may be low, but they are still encouraging. Combined with the knowledge that an overall majority see AI as a growing factor of their competitivity, it seems that the big AI breakthrough is on its way. Though varied across industries and moving at a leisurely pace, the adoption of AI is making progress. Looking beyond AI and back to the overall rate of digitalization, a similar story is playing out. In some industries, digitalization is growing considerably fast — in others, it is stagnating. This years' winner in digitalization was clearly the retail industry, rating its digitalization at 6 points from a scale of 1 to 10. ICT companies reported a slightly higher level of digitalization at 6.1, but with a smaller leap of 0.3 compared to 0.5 for retail. Steady growth was on the cards for almost all industries, apart from the automotive industry and the banking and insurance sector. Automotive companies stagnated at a high level with the same number of points as last year at 5.9. Alternatively, the banking and insurance industries experienced a fall of 0.2 points in their digitalization. New Work requires change management The next year will undoubtedly be an exciting one with each industry driving its digitalization strategy in different directions. Most companies will focus their change management activities on New Work in 2022, suggesting that the working world is going to look a lot more digital this time next year. Business processes and model updates will also be a significant focus and the number of companies using agile methods will probably continue to rise. The defining factor of 2022 may be how organizations come to terms with shrinking budgets and the continuing effects of the pandemic. The study revealed that more than one in nine companies had no budget left for digitalization, however, the percentage of those with budget who are afraid to take risks with investments has fallen. These unique conditions have given us a fascinating developmental year for digitalization. Positive signs are rife throughout the study, as well as thought-provoking analysis of both the current and coming year. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the

digital age 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 should a bank do batch when they can do real time?

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processes involve updating multiple entities at the database level that need to be performed as a group. For instance, account posting, and settlement operations require an entire group posting that can be followed by a reconciliation process to ensure completeness and accuracy of the postings. Another use case can be classified under reporting and analytical platforms, where a large number of database records are processed for analytical or report generation purposes. However, it is possible to bring in incremental aggregations at individual transactions or triggered events rather than performing a traditional periodic bulk operation that erodes the value of instantly available data. Let us look at some specific examples. Why real-time processing matters? Today, most payment platforms continue to operate with legacy technology that lacks flexibility in adapting to changing requirements and response times. A simple acknowledgement of a payment process takes time because an account update is perhaps a day-end operation – it need not be for all scenarios. These systems can be made more responsive using streaming technology and an associated real-time architecture. Payments and core accounting platforms may explore to eliminate the need of a complex set of operational steps, given that the core activity focuses on debit or credit of the customer and other associated accounts as per accounting practices followed in the bank. However, the complexity lies in the business rules used for computation of the debit or credit amounts, which are typically batch-oriented processes. The other main functionality of such platforms requires interfacing with source and target applications to receive transactional data and expose account information. Evidently, performance bottlenecks stem from the calculation engine and the interfaces. If you, as a retail shopper, buy a product and send a payment instruction from your mobile device, you would want to see an immediate update on your account balances. Perhaps, banking enterprises need to focus on the bottlenecks in the traditional application architecture layers and available real-time technology enablers. This is where real-time interfaces like NoSQL come to play. NoSQL databases like RavenDB, Couchbase, Redis, MongoDB, and more have lifted the constraints imposed by relational structures requiring referential integrity and frozen data models. Moreover, updates using specific formats such as JSON are as easy as retrievals. Integration between systems is also improved with products like Dell Boomi or Confluent, which provide cloud-based solutions and a multitude of connectors, ensuring scalability and flexibility. Performance of business rule engines can be improved by defining rules at an atomic level and decomposing them into binary units. While simplifying operational steps from core accounting and payment platforms, in-memory visualization tools can solve the challenge and bring data to the fingertips through multi-media interfaces. Streaming versus real-time processing When it comes to transforming traditional batch processing functions with real-time systems, it is imperative to understand the difference between streaming and real-time processing. Quite often, a system that guarantees a reaction within tight deadlines is described as 'real-time,' where the time taken can be in minutes, seconds, or even milliseconds. For instance, in a stock market, a quote arriving within 15 minutes of placing an order demonstrates the capability of a real-time system that guarantees a reaction within a brief interval. On the other hand, streaming presents continuous computation as data flows through a system. Streaming involves no time limitations exclusive of the business tolerance to latency and the technology solution

used. However, this method has two requisites: output rates must at least coincide with input rates in the long term, and sufficient memory for storing queued inputs needed for the computation. Considering the basic performance parameters of a system, achieving real-time or streaming may need fundamental redesigning of applications where the underlying design principle of atomicity of the computations and feedback is adopted in every component. Microservices architecture when coupled with digital solutions can addresses this principle adequately. The change is here – how do banks adapt? Adapting to this fundamental shift comes with a fair share of challenges for enterprises mired in a complex web of legacy and modern technologies. They need to take the leap, as a slow and easy change is not an option. When implementing a real-time change, it must be executed just as quickly. Therefore, enterprises must invest in building a new platform on real-time principles, but for an interim period, co-operate with the existing one, chipping away core functionalities within a well-communicated plan. Cloud-based platforms, along with concepts of containerization and DevOps are good enablers for embracing such a change. The change is fundamental, and therefore, it would not be feasible to implement it through modifications to an existing legacy setup. A new platform will be less costly and managed better in terms of impact to end-users. Those who have embraced the architectural changes based on real-time or streaming requirements are better positioned, to earn greater customer satisfaction and remain competitive in the market The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Coming of Age of Technology Specialization

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classic regression models, a move to CNN/DNN-based prediction models backed by modern data pipelines can provide a technology win that would have taken several years to secure organically. The multiple available solutions have made it possible to plug together the relevant ones offering wins far bigger than the evolutionary in-house technology roadmaps. Legacy systems with technology roadmaps limited to in-house development plans can now choose from a wide range of cutting-edge solution providers and assemble them in several ways to modernize their stacks and systems. Change is the only constant While the current trend is set to continue, the competitive edge several organizations had from moving to the SaaS and Cloud (IaaS, PaaS) universe is likely to level over time. The competitive boost from the exposure to a wide range of new technical blocks has also motivated the competitors to follow a similar path. So, while technology adoption is still a big advantage for organizations (given several legacy systems are awaiting modernization), it will cease to be the key differentiator in the market for a business going forward. At a time when even the tiniest competitive edge can create a big difference in influencing the end customers, the normalization of the advantage gained from technology adoption is likely giving way to the resurgence of technology experts. While the rate of digitization and service-fication of platforms, and technology-spurred technical sophistication has provided organizations a competitive edge, it is set to slow down over time as those lagging embark on similar journeys. When that happens, it isn't the adoption of new technology blocks but the ways these blocks are arranged and integrated, and who drives the use of these blocks will be the key differentiators. For example, it would have been a big gain for the data models of a bank leveraging CNN/DNN-based forecasting technologies. However, over time, the margin of gain would shrink with most of their competitors migrating to similar technologies, making it critical to not just leverage new technology but to use it appropriately and with expertise. The same bank will now need the help of experts to invest in model shapes, sizes, and better feature engineering, determine the right hardware setup to make model handling cost- and time-efficient, and bridge the gap between domain and technical areas with unique insights. Onwards and upwards The trends of platformization, digitization, and cloudification of technology have helped turbo-charge the technology roadmap of several organizations in the recent years. Moving legacy systems to a new era of technical innovation helped organizations not only modernize their stacks but also leverage the collective innovation of a much broader nature. One can imagine this trend speeding up the progression of technical sophistication in companies and taking them from being early adopters to becoming sophisticated users. As this space gets populated fast, the competitive differentiation is set to shift from just technology adoption to working with the right experts who can steer the technology roadmaps of these evolved systems to take enterprises to the next level of growth, success, and innovation. There is much excitement ahead. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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The Role of Utilities in Transport Electrification in the US

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putting electrification at the core of their strategies. When it comes to market penetration, the US has varying rates of electric vehicle (EV) adoption. Let us explore some of the key drivers that have contributed to this accelerated attention that EVs have received in the US: Policy Technology Environment In the right place at the right time While vehicle OEMs are the obvious and natural key players, utility companies are more strategically placed to lead the transport electrification and battery ecosystem from the front. Policy changes have driven multiple utilities to transform from an enabler to an active ecosystem player. Patterns that have surfaced during this evolution include: Transport electrification is the need of the hour and being in the right place at the right time with the right strategy is critical. Utilities that are stepping up efforts with the right tech partner now will be regarded as pathfinders in the future. Companies that wait and watch may miss the bus (quite literally!). The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Is your business on the quantum computing super highway yet?

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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. Vidyut Navelkar Head, Quantum Computing, Strategy and Consulting You have these already downloaded We have sent you a copy of the report to your email again. Quantum computing is a completely new paradigm of computing based on the principles of quantum mechanics, which in turn is based on the behavior of atomic and sub-atomic particles. Simply put, unlike classical computers that represent information using bits that are binary in nature, quantum computing represents information using qubits that can assume an infinite number of values between 0 and 1. This fundamentally different way of representing information along with certain other characteristics of quantum behavior results in tremendous computing power. The promise of quantum computing With the performance of classical computers likely to plateau due to physical limitations on the number of transistors that can be packed on a microchip, quantum computing promises a breakthrough that could provide the power required to solve problems that are characterized by complexity that cannot be practically handled by even the most powerful supercomputers of today. Such problems, typically referred to as intractable or NP-complete, are widespread across domains, and include diverse use cases such as portfolio optimization, vehicle routing, drug discovery, chemistry simulations and so on. Quantum computing technology thus has the potential to impact and transform a wide range of industries and create new opportunities for businesses to gain competitive advantage. The flip side On the other hand, however, it has been established that the power promised by quantum computing will make it easy to break current cryptographic practices and render these ineffective. It is therefore important for businesses to not only look at the opportunities that quantum computing would enable for them, but to also concurrently ensure that they are ready with the right measures to protect them against any new threats that may arise as a result of this technology. Where are we today? The last few years have seen a multifold increase in the number of hardware and software players in the quantum computing space – both established giants as well as startups. Current quantum computers are however severely constrained by their limited number of qubits, and their sensitivity to temperature and other 'noise' leading to decoherence. Different technologies and approaches are being tried out and tremendous progress is being made on multiple fronts. The technology is evolving faster than what was thought possible and it is safe to say that the future of quantum computing holds exciting competitive promise for business and industry overall. The journey of quantum value discovery Given the above developments and trends, we believe that quantum computing is now entering the mainstream. Many organizations, across verticals, have already started investing in exploring this in the context of their businesses. While the technology itself is evolving, the time is right to start investing in experimenting with this new technology to

understand the opportunity that it may hold. Here are a few pointers on how you could kick off your journey to quantum value discovery: The role of a technology ally Considering that most of the current work is likely to be of an exploratory and experimental nature, the right approach for most organizations would be to remain open on decisions related to investments in specific technology stacks, and instead focus on decisions related to investments in specific use cases. Most organizations will therefore benefit from having a technology neutral partner who could help them navigate through this early journey of exploration and experimentation without binding long-term commitments to specific technologies. Such a partner will not only bring in tremendous value as a collaborator in the steps proposed above, but also significantly reduce the risks of experimenting with an evolving technology of this nature. Considering the nature and state of the technology, here's what we recommend an organization should look for while choosing their technology transformation partner: Having said this, there's just one little question that begs to be asked: Is your business on the quantum computing super highway yet? The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Closing the Gender Gap for Women in Tech

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mention the unique additional avenues for learning and sharing an assortment of skills. And I was familiar with the business ethics that the Tata group is known for globally, which I now formally know as the Tata Code of Conduct. What really struck a chord with me, though, was TCS' ability to offer a diverse array of roles, and its considerate and empowering approach to challenges faced by the female workforce. This strongly resonated with what I wanted for myself, and I was fortunate enough to turn my aspirations into reality. I was, hence, not surprised but of course, immensely pleased when TCS introduced Rebegin earlier this year — a special initiative that focuses on women with a career gap who seek to come back to the corporate space. All you need is at least two years of uninterrupted past work experience to be eligible for consideration as a full-time employee with as much of a shot as anybody else, without worrying about how long the gap has been! And all that matters is your talent. Women in TCS constitute 13% of the workforce at the senior level, 30% at the middle level and 45% at the junior level. While one may rightfully say we still have a long way to go to reach where we should ideally be, I look at the glass half full — because the numbers and related trends are actually encouraging in light of how far we have come in making the workplace more accessible for women, as an industry and as a society. I can confidently say that TCS remains committed on the path to balancing the scales for women in the IT scene. The road to gender equity in the corporate workspace is possibly a long and bumpy one, but we are getting there –one step at a time. I would like to list some formal recognitions that were recently conferred upon TCS –these reaffirm our position as a change leader especially in workplace diversity and inclusivity: These accolades underline the employee-centricity I have experienced first-hand at TCS; something the organization constantly seeks to enhance through initiatives like Rebegin. I could go on and on about how this is an organization with a difference, but I would sincerely like you to see for yourself! Whether you wish to begin or rebegin your career, be assured that you have come to the right place. Come, explore a career opportunity with TCS. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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What Lessons Can Enterprises Learn from Today's Semiconductor Shortage?

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more chips. For instance, a Ford Focus car uses about 300 chips as compared to the company's new electric vehicles, which use 3,000 chips, a report by CNBC stated. To add to this challenge, automotive original equipment manufacturers (OEMs) are competing with PCs and smartphones, as semiconductor manufacturers prioritize the already limited chip supply. With big electronic companies accounting for almost 70% of a semiconductor manufacturer's revenues, in comparison to the 10% contributed by the automotive industry, chip shortages may continue to be a challenge soon, especially for automotive OEMs. Besides raw material supply and production, geopolitical issues also have had a ripple effect on the supply chain. For example, the west African country Guinea produces approximately 22% of bauxite globally and exports nearly 50% of it to China for aluminum production. The military coup in Guinea, which took place in September 2021, has put the aluminum supply chain at risk, with the metal even trading a 10-year high price of $2,782 per ton on the London Metal Exchange earlier this year, a report by Bloomberg stated. This in turn could trigger potential shortages or price hikes for both the fast-moving consumer goods (FCMG) and automotive industries. What's happened in the automotive industry has exposed the risks of global supply chains. It is also a lesson of how real-time collaboration and an understanding of the gaps between demand and supply can mitigate any supply risk, irrespective of the industry. A big picture approach is key to building flexible, agile, transparent, and resilient supply chains. Here are five capabilities that will allow automotive OEMs to overcome supply chain disruptions, especially during unpredictable global events: A detailed infographic on the visibility of suppliers of automakers across the globe and how external events, such as rise in commodity prices or vaccination status, can alert automakers about possible supply risks.   Riding out the uncertainty with a transparent supply chain Applying strategies to improve supply chain transparency requires an interconnected ecosystem consisting of product vendors, tier 1 and N suppliers, and retailers besides the product design, production planning, and more. Cloud-based products can make the supply chain more intelligent with features such as proactive risk mitigation, real-time market updates, and price and supplier performance tracking. Intelligent workflows, AI-driven automation, and data analytics can improve decision making, so that OEMs are quick to respond to changing market and supplier dynamics. Moreover, these capabilities can be extended to a variety of manufacturing parts or materials such as sheet metal, aluminum, etc. The semiconductor shortage is a wake-up call for companies across industries – is there a similar situation around the corner? A connected, intelligent, and collaborative ecosystem, which provides 360-degree visibility into complex and diverse supplier networks, is the way forward. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 Assets – A New Paradigm in Capital Markets

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inefficiencies that cost delays and unnecessary expenses. Adoption across markets The demand for digital assets is rapidly increasing across segments. According to a survey conducted by a leading financial services firm, conventional investors such as hedge funds and family offices in all leading markets have increased their exposure to digital assets. Most investors have a positive perception of digital assets. Regulators' view Regulators across the world have recognized the need and have accordingly framed rules for the issue and trading of digital assets. Regulations in this context are evolving rapidly. Early birds of digital assets adoption Introduction of digital assets has varied impact on the entities in capital markets. We attempt to capture the nature of impact on the business of various entities. I envisage the following stakeholders as the early birds: Custodians Custodians can offer custody services for these assets. Digital assets are secured by a cryptographic key, which is effectively a digital bearer instrument, and gives the holder complete control of the asset. Custodians must store these cryptographic keys on behalf of the client. Custodians who can manage private keys can offer services around assets such as cryptocurrency, securities, a piece of real estate, or non-fungible tokens (NFT). Many custodians such as BNY Mellon have announced the development of digital custody and administration platform for digital assets. Investment banks Digital assets can provide a new revenue stream as a new asset class. Investment banks can benefit from higher operational efficiency due to faster settlement, lesser reconciliation, and better liquidity. Considering the regulatory uncertainties and risks, it is expected that investment banks will advise clients on minimal allocation in this asset class. However, emergence of new trading venues can impact investment banks due to disintermediation. Broker dealers Broker dealers may benefit from new revenue streams like prime brokerage for crypto assets and crypto custody. Broker dealer operations become more efficient and simplified due to the need for lesser reconciliations and accelerated settlement on digital assets. Issuers Digital assets provide multiple benefits compared to a conventional issuance of asset. Issuers could create NFTs and provide better liquidity, thereby reducing the transaction costs. Digital assets have become initial investment categories, and retail investors are investing in this asset class. Investors With digital assets, investors will have the ability to achieve fractional ownership of financial and non-financial assets, due to which digital assets provide enhanced liquidity and accelerated settlement. Asset managers Digital assets create potential opportunities for new business from new asset classes and greater operational efficiency for asset managers. Exchanges Exchanges can benefit from trading in new asset classes. Many non-financial assets can be traded as tokens. SIX Digital Exchange (SDX) has received the regulatory go-ahead to operate a stock exchange and a central securities depository for digital assets in Switzerland. Market infrastructure – central securities depository (CSD) Market infrastructure firms will benefit from clearing and settlement of transactions in newer asset classes, will gain operational efficiency and may play the role of operator of blockchain platforms. However, there can be loss of new business due to disintermediation. Existing centralized infrastructure will continue with distributed ledger technology, facilitating newer business. Conclusion In the past, there was lack of clarity from the regulators regarding adoption of digital technologies, however, regulators have recognized the need for digital action. Digital assets will become

mainstream in the next few years and will be widely accepted. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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insurance and see it in a new light rather than use conventional policies that target the mass market. Personalization and pricing at just the right time will be the key to success for APAC insurers to integrate in their product development process in 2021. Curating products with a unique value proposition Sustaining microinsurance Asia-Pacific is one of the largest markets for microinsurance, primarily driven by the increasing demand for microinsurance products and services in developing countries. This uptake in demand for microinsurance is due to the small installments of premium amounts from the economically weaker section, the digital native generation, and the favorable government initiatives, that are set up with an aim to further increase micro insurance penetration in the country. In 2020, the global microinsurance market attained a value of nearly USD 68.6 billion and is forecasted to reach about USD 100 billion by 2026. Insurers need to leverage new channels, partners, and cutting-edge technologies for innovations in microinsurance to capture the untapped market segment. Here's an example: A bite-sized, stackable insurance coverage integrated certain everyday activities, like taking the bus or going for a walk. These triggers activate a microinsurance purchase from as little as 30 cents and stack up over time to determine the coverage amount for an insurance period of 360 days. Also, microinsurance applicable to the new-generation lifestyle, such as e-wallet theft and loss, device protection, and data breach is becoming increasingly popular. Future for UBI (usage-based insurance) is gleaming According to a recent study by Ptolemus, Asia-Pacific, led by China, will account for more than half of the forecasted 60 million mobile UBI subscribers worldwide by 2025. The COVID-19 pandemic can indeed become a stimulus for customers to consider UBI, and insurers can expect a considerable shift in customers' needs from traditional insurance to UBI in the future. Usage-based pricing era for insurance is enabled with the advancement of IoT, telematics, 5G, AI, and big data analytics. These top-notch technologies have the potential to transform the property and casualty (P&C), life, and health insurance industries. Here's an example worth highlighting- Thaivivat, an insurance company based in Thailand, has chosen AIS NB-IoT motor tracker to introduce the world's first insurance policy that turns on coverage when the car starts, and turns off when the engine is shut down. A lifeline for the gig workers As per a survey conducted by Zurich Insurance in 2020, nearly 40% of full-time workers in Malaysia are looking to enter the gig economy. People with secondary education and women, especially with family responsibilities, tend to join the labor market through gig employment. As the number of gig workers has risen exponentially in the recent years, Asia-Pacific countries have started nudging insurance companies to provide personal accident and savings insurance for the new workforce structure (e.g., Uber, Grab, Food Panda, and more). We witness regulatory initiatives underway across Asia to safeguard the rights of the gig economy workers. For instance, the PenjanaGig program in Malaysia is a government assistance initiative to ensure the social security and welfare of self-employed persons in the gig economy. Benefits to insurance providers Here are the benefits of curating products with a unique value proposition: Conclusion: To sustain and grow in the future, it is imperative for insurers to tweak their current product structures, portfolios, and insurance value chain processes to introduce innovative microinsurance or usage-based insurance products. Insurers must leverage the latest technology to addresses the needs of the emerging segments of consumers. The future insurance

industry will bring more curated products with a unique value proposition to the market, that seamlessly adjust coverage based on the evolving needs of their customers and uncover untapped market segments. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 =======================

Mitigating Algorithmic Bias in Insurance

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today's digital world, and many enterprises are in a rush to harness its intelligence and reap benefits. But most of them fail to realize that AI has its own shortcomings. The most common one is the algorithmic bias, where the outcome or decision of an AI model favors or discriminates against a specific class based on a few select attributes that vary by industry. Causes of bias The AI model by itself does not have any inherent bias, but the real culprit is the data used to train the model. Bias can originate if the training data is incomplete or if it does not evenly represent the population. This usually happens when one trains a model using data from one region or class or timeframe to predict outcomes or derive insights for another. Bias can also be perpetuated if the training data is contaminated with historical bias. An insurer using an underwriting model developed in one state to generate insights for another state, using historical crime data to detect current fraud, or using past weather data to predict future climate risk are some typical examples in the insurance industry that could lead to unfair premiums or inaccurate risk prediction. Mitigating Bias Bias must be detected first before it can be addressed. Normally, one examines model outputs of different groups to check for anomalies indicating bias. Explainable artificial intelligence (XAI) is another means to understand if any protected attributes are influencing the outcomes. Refer to my article on XAI for more details. One should evaluate the business need and social cost while prioritizing bias over accuracy when there appears to be a trade-off between the two. Estimation models AI is used to estimate the mortality or the possibility of an insured getting sick to determine one's life insurance premiums. The model can exhibit bias for some individuals based on attributes like age, gender, location, name, and country. Similarly, AI is used to estimate the damage in an auto claim based on photographs. It is possible that the model is trained on very few makes and models of vehicles, cannot fairly estimate the claim amount for all vehicles. In the above scenarios, the model needs to be trained with the right data to eliminate bias. One way is to ensure that we have a balanced training dataset or at least reduce the imbalance in the available dataset. Researchers at Yale have found a means to audit a given dataset and determine the extent of imbalance or skewness with respect to said attributes. This will indicate the possibility of an individual having an undue advantage due to their age, gender, or location. They also recommended a novel data pre-processing step to reduce the imbalance in the training data and thereby mitigate bias. Personalization or recommendation models Organizations use these models to recommend products and services to users based on their profiles. Agents tend to recommend products that offer them higher incentives. So, using that data to train a model would be unfair. Organizations must ensure that recommendation engines don't exhibit bias in the choice of products for a given individual. Researchers at Yale have come up with a framework that regulates what the model can recommend based on certain constraints imposed by the user. Instead of giving complete freedom, the user dictates his or her needs, forcing the model to make a recommendation bound by those constraints. This mitigates potential bias and increases personalization, leading to better revenues. Classification models This model is commonly used in Insurance. The auto business uses AI and telematics to determine if an insured is a safe driver or not. AI classifies fraudulent financial transactions and claims. The model can be biased toward certain individuals and can unfairly judge them as criminals or ineligible based on

few sensitive attributes, like their race, color, location, gender, and age. Fairness constraints are a means to mitigate this bias. They ensure that individuals with different sensitive attributes stated above have equal probabilities of being classified based on the remaining attributes. This will ensure that the model is not influenced by attributes, while identifying criminals or approving financial transactions. Conclusion Bias is a major drawback of AI that originates from training data. Evolving business models and their underlying data will constantly change, making it impossible to build a perfect training dataset. Balanced training datasets and fairness constraints could potentially mitigate bias. The finance industry should be aware of bias while deploying AI in their business operations, and should employ means to detect, correct, and prevent any harm to its customers. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 is Data Lakehouse Platform Selection Important for BFSI CDOs?

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financial data selectively at query runtime. Lakehouses with this feature reduce data redundancy and prevent unnecessary object creation, like views for implementing access controls. Besides, data cloning creates replicas of database objects without producing additional copies of data for different environments. If used for long, this process helps reduce operational efforts and costs of the financial institutions significantly. Lakehouses also use storage and compute on separate clusters and can scale to more concurrent users and larger data sizes. For optimized resource utilization, enterprises must select a solution that supports both vertical and horizontal scaling. Preferably, the lakehouse solution needs to be tested with heavy parallel loads through SQL-based read or write transactions. It should have enough scaling on the compute for better data retrieval without the help of any traditional performance enhancers like indexes or partitions. The migration path from an existing data system to the target platform should be easy to achieve in terms of datatype compatibility, SQL support, and other similar factors. The transition should also support schema enforcement and evolution, for data warehouse schemas like Star and Snowflake. Financial institutions often have a vendor-neutrality requirement, where the lakehouse should have the capability to be hosted on any cloud provider, like GCP, AWS, or Azure, for more flexibility of data migration in the future. The ease-of-use and compatibility of the new lakehouse solution with the traditional one must also be evaluated to eliminate significant training and knowledge transfer efforts and costs. What's next for lakehouses? The increasing need for the versatile architecture of data lakehouses looks promising due to its performance and efficiency advantages for atomicity, consistency, isolation, and durability (ACID) of transactions. This is particularly important for banking and financial organizations in simplifying their legacy data platforms that are incapable of satisfying the emerging needs of different user sets. Banking organizations are also looking at their data monetization strategy (data provider) or improving their decisions regarding marketing or sales with external data enrichment (data consumer). Despite data lakehouse being an emerging concept, we see it gaining traction as most organizations adopt it to become data-driven businesses and secure a competitive edge.   The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

Enterprise Digital Twinning: New-age Technology's Safety Valve

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what if sales receipts fell by 10%; what if they rose by 15%? Now, imagine the possibilities if we could scale this up and do such simulations at an enterprise level. An enterprise digital twin offers a similar glimpse into a hypothetical future in the event of an operational change or a response to the market. It recreates a virtual model of the enterprise environment, which can then be manipulated to simulate various customer journeys, powered by artificial intelligence (AI). But this is more than an abstract model, because this virtual creation connects to its real-world counterpart via three distinct replicated operational blocks – infrastructure (IT, networks, physical assets), IT application stacks, and business processes. With that kind of insight, an organization can map out the ideal buyer journey; in a perfect world, this is how we hope things will play out. This idealized situation can then be continuously compared with what is happening in the real world. That can give decision-makers invaluable insights into specific areas where the ideal scenario and reality part ways, and, in time, prevent lost business while strengthening customer loyalty. But steps can only be taken to mitigate such a loss if the reasons for the same can be identified and explored. Additionally, this kind of enterprise simulation makes it possible to examine trends such as competitor actions, the influence of technology, and inventory availability. Immediate, in-depth and meaningful analysis like this can help depict whether such trends might have an impact on current operations and back decisions with more reliable evidence. Take the case of a multinational telecommunications firm that used an enterprise digital twin solution to identify the ideal customer journey, reduce customer churn, and arrest potential fraud. Key entities such as customer, product, process, network, and resource were mapped, to test strategic decisions such as new product rollouts or the launch of new channels, before piloting them in the market. This helped the firm enhance customer experience and maintain market leadership. The challenge for CSPs We're already at a point where people's expectations of getting great digital experiences are racing ahead. From hailing a taxi and ordering a takeaway meal to checking your bank account and placing e-commerce orders for same-day delivery - the many things we have been taking for granted were almost inconceivable a few years ago. For CSPs being able to support businesses in these efforts calls for flexible, intelligent connectivity that can help safeguard margins during times of change. Having to reinvent your service offering for every customer scenario is just not feasible. What's needed is the ability to understand your infrastructure and develop robust capabilities that can be replicated. As the telecom sector continues to transform at a lightning speed, emerging technologies such as 5G and IoT will drive a huge increase in speedy connections and its scope – allowing for 20 billion new devices to be connected and supporting a 1,000-fold increase in data. To remain competitive, CSPs will need to leverage enterprise digital twin technology which can bring some predictability into the business. So let the digital twin hold up a mirror to your enterprise, for when businesses do have to confront the bend in the river, they are able to navigate it smoothly. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Identifying and Protecting EPC Firms Against Typical Cyber Security Threats

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research are becoming common among these offenders to make the compromises more effective with higher return on investments, only to reinvest returns into more technical sophistication to better orchestrate future attacks. It is no more only about encryptions, rather deploying data theft tools to take a backup to use for ransom, should the companies manage to rebuild the landscape. The timing of launching such cyber-attacks is carefully looked at and such attacks are socially engineered and are targeted to match critical events like the promotion cycles to prompt an anticipating employee to click on attached promotion letters. While qualifying the targeted companies, the impact is strategically assessed by looking at the company's complete ecosystem. The year 2020 saw some instances where companies like SolarWinds were strategically targeted to penetrate because of their deployment at multiple supply chain customers, the one with Kaseya was meant to impact their small-scale end consumers like local grocery chains. This article explores typical cyber-security related issues that the engineering, procurement, and construction (EPC) firms face, and attempts to share a quick view of how to manage these better. Identifying the crown jewels: EPC customers often operate in multiple lines of businesses with widespread siloed functions and teams. It is common to see such customers dealing with functions of engineering, utilities, infrastructure, logistics, transport, and facility management to managing ships or rail fleets in some unique cases. While it is important to have complete coverage of assets, prioritizing the identification of the business-critical assets can help improve the security posture. The critical areas to look out for include corporate, compliance and business-critical functions. It is important to maintain this view as the IT landscapes are ever-changing. Events like acquisitions, the addition of newer platforms, the introduction of new systems would demand alignment of the initially established business view, and efforts on such exercises should be planned and budgeted upfront. Lack of joint ownership on information security: A cyber vigilant enterprise demands a culture change and a full-scale participation from all the IT and key business stakeholders. In certain situations, a firm's IT infrastructure could be supported by one vendor while the IT applications could be managed by another, adding to the overall complexity. Separating the CISO function from the risk management function and enabling underlying support with the right operating model will ensure better participation on this journey. Well defined responsibilities for remediation vs communication, cross-functional teams that govern the progress, operational level agreements among moving parts of the enterprise, and so on, can incentivize the stakeholders to jointly own the agenda and collaborate better on cyber risks. Identifying risks from the suppliers: Managing a large ecosystem of suppliers and assessing the cyber risks across is an uphill task. Prioritizing the critical and strategic suppliers can make this activity manageable. Supplier contracts should be periodically reviewed for security and data-related clauses. With cyber risks taking shape of geopolitical issues, a critical supplier must be evaluated for these risks and the contracts should provide sufficient safeguards to protect the company. Security reviews can be embedded as part of the onboarding process depending on the nature of procurement and respective risks should be mitigated through an actionable and agreed plan. Lack of inhouse information security capabilities: Cyber-security skills are most in-demand and building capabilities in-house can be a slow and an expensive affair. Instead, a

combination of in-house and IT security services providers can add scale to the capabilities rapidly, yet in a cost-effective manner. The overall consolidation of contracts towards a single strategic partner should be encouraged. In absence of the right capabilities and higher cyber debt, companies can look at cyber insurance as interim mitigation. Conclusion Cyber-security parlance is evolving every six months and with thin budgets, a holistic cyber-security strategy is the need of the hour. A strategy that draws strengths from existing business continuity or disaster recovery plans, configuration management database, business view of critical assets should be sharpened to reduce the 'time to detect' and 'time to remediate' instead of trying to deal with individual threat. By jointly working with the ecosystem, the right capabilities can be built lap-by-lap in a never-ending race.   The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

Sustainability in the Staffing Industry: A Three-pronged Strategy

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opportunities for candidates irrespective of race, color, sex, nationality, age, or disability. To address the diversity and inclusion requirements in the industry, staffing firms need to put a process in place to avoid any hiring bias. Although firms can leverage machine learning models to select profiles, these models are trained on historic data, which may have bias. Solutions such as workforce analytics will ensure there is no bias in the data that is used to train the models. Workforce analytics can also help organizations identify potential sources of bias, set rules and guidelines for accurate data selection, and monitor and review the model performance. Go-green staffing – the environmental impact Leveraging technology to reduce paperwork and travel related to the recruitment process can help staffing firms become environmentally friendly. An AI-powered recruiting platform can automate recruiting processes such as answering candidates, verifying qualifications, and updating documents throughout the hiring process. Staffing firms can use virtual reality (VR) and gamification solutions for skill assessment of the candidate, thereby improving the interview process and increasing the hiring efficiency. Blockchain technology can help maintain records of employment such as training, skills, work performance, and so on. This also ensures the security and confidentiality of candidate data and compliance with GDPR. Incorporating AI-enabled video interviewing can reduce traveling and create a greener recruitment process. Staffing firms can play a big role in enabling the transition of their candidates to meet the green job requirements. Firms can also look at sectors where green jobs are growing in demand and proactively plan to meet the requirements. Debating whether to include corporate sustainability in the organization's strategy is not an option. The International Labor Organization (ILO) estimates that 24 million jobs worldwide could be created by the green economy by 2030 alone. A shift toward a green economy is underway, and staffing firms are leveraging technology to achieve the sustainability objective more quickly and efficiently. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Ensuring Customer Success Using Multi-cloud and SaaSification

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with longevity, sustainability, and profitability at its heart. This will provide the software industry's entire environment with a modern data protection model. With the future remaining uncertain, now is the time for companies to utilize SaaS technology to solve their data protection challenges. Hence, the need of the hour is to quickly move as much of your business to a readily available SaaS solution. SaaS shares the distinction of being both a business and an application delivery model. It enables customers to utilize an application on a pay-as-you-go basis and eliminates the need to install and run it on the customer's hardware. The demand for SaaS solutions has seen rapid growth in recent times. SaaS companies that will be agile enough to innovate their service to meet the upcoming consumer demand will likely grow faster and weather the competition. In a modern-day IT environment, it is rare for users to rely on one software application in isolation to accomplish their objectives. SaaS apps must integrate seamlessly and effectively with the other components in the customer's technology stack to demonstrate value to a customer. By designing software to support as many product integrations as possible, the application becomes an indispensable part of the IT ecosystem. Amid the pandemic, a safe workplace has become a priority. A SaaS setup can help put in place a safe environment. Proximity-detecting, contact-tracing apps use Bluetooth signals from nearby devices to record contact events. Centralized SaaSification applications share information about contacts and contact events with a central server using cloud and IoT. The centralized SaaSification applications upload information when a user reports testing positive for COVID-19, which helps to alert people to take precautions. Tracking some of the key customer success metrics such as product usage or adoption, customer churn rate, average revenue per user, monthly recurring revenue, conversion rate, customer acquisition cost, renewal rate, net revenue retention, net promoter score, and customer satisfaction score will give a clearer picture on how and where the company is generating revenue. This will help the company make smarter, customer-focused decisions. Final take Digital transformation is going full speed ahead, and there's no better time than now to consider transforming your business to a multi-cloud and SaaS model. When software is in the cloud, location is no longer a limitation, allowing software development companies to think beyond geography and expand their business globally. This way, independent software vendors can seize the opportunity to provide their solutions to a much bigger market. Thanks to lower deployment and operating costs, SaaS is now less expensive and has the potential to open new customer segments as more businesses can afford to use it. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Reinsurance CFO Priorities – A Frame of Reference

Over the years, the roles and responsibilities of a reinsurance CFO have undergone a sea change; in fact, some modern-day enterprises have a different connotation altogether for what the word means. From chief financial officer to chief future officer, this change has been spurred by many factors like the financial crisis (2007–2008) that took investment banks, insurance firms, and broker-dealers through quite a swirl. The reinsurance industry endured adverse effects with a steep deterioration in financial market valuations and investment portfolios, almost leading to a moral hazard. That said, crunching numbers is merely a fraction of the role of a CFO. Market-related imperatives like environmental, social, and governance (ESG)-centric data-driven decision-making, globalization, and the adjoining regulatory implications, along with fluctuations in the world economy, imply that a reinsurance CFO's top priorities must broaden significantly. The changing role of reinsurance CFO From a reinsurance perspective, a CFO is essentially responsible for risk and financial management, investor relations, such as public disclosures,

climate-related financial disclosures, and group reporting. The financial management facet is more of a balancing act. One side involves diversifying liabilities (reinsurance claims) into a set of market-consistent cashflows based on risk-neutral scenarios and parameters by using the replication portfolio approach. The other side covers the valuation of underlying assets such as investments, securities, cash, among others. This helps in achieving a better understanding of the projected future reinsurance liability claims to their underlying asset values. Depending on the development of reinsurance liabilities, frequent rebalancing may be necessary. When it comes to reinsurance risk management, a CFO's role involves balancing claim maturities against its underlying asset maturity create (asset liability management) mismatch. Asset liability management (ALM) is a form of risk management that hedges risk associated with a mismatch between reinsurance claims and the underlying assets. The ALM risk also subsumes itself within the underlying liquidity risk for reinsurance. As maturity windows of reinsurance claims tend to be longer than the maximum market-based tenure of their underlying assets, the key to managing reinsurance risks is defining tolerance thresholds and managing mismatches. Since yield returns on assets are near rock-bottom, firms tend to evaluate asset investments with longer duration or higher yield for greater profitability. The collateral consequences might aggravate the firm's overall risk profile. CFOs tend to strike a harmony between appropriate reinsurance risk tolerance and returns on the underlying asset. Ultimately, the firm must be profitable and provide returns to shareholders, all within the scope of prudent financial management practices. Netted along is the CFO paradigm for reserves and capital management. It mainly stems from holding sufficient buffers to shoulder contingencies in claims and asset valuation shocks and demonstrating financial solvency to stakeholders such as regulators, markets, and equity investors. This paradigm is a moving target such that excess reserves and capital may hamper profitability. Still, if insufficient, it can lead to a risk of eroding public confidence and the reputation of the reinsurance entity. A second prominent facet is investor relations and disclosures. Here, the purpose is to provide the external stakeholders with a comprehensive, accurate, and transparent financial picture of the entity so that they can take informed decisions on whether to invest in the firm. Reinsurance firms can also conduct their own risk and solvency assessment (ORSA) as part of the Solvency II directive. From a regulatory compliance perspective, a reinsurance CFO's priorities involve adhering to: Additionally, reinsurance firms in EU and the UK must comply with Solvency II in both jurisdictions. What's next? CFOs may consider the following steps to achieve their priorities: Beyond just a financial steward In summation, the role of a CFO has evolved beyond just a financial steward. Although the financials remain a fundamental responsibility, CFOs are also looked upon as the strategic change-makers for reinsurance firms. With the add-on need to ensure liquidity and ESG as a major deciding factor for investments, CFOs will play an essential function in business strategy formulation and execution, serving as an organization's leader and external-facing advocate. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my personal data entered

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Tech-powered Models in the Insurance Sector: Reclaiming the Unclaimed Property

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payroll checks, dividend payments, and other types of valuable assets. Regulators urge organizations to settle unpaid claims and have created several bodies that enable the tracing of rightful owners. A holistic approach that combines process and technology can work towards overcoming this escalating crisis. It needs the adoption of a mindful approach, tweaking the business models in insurance claims management—with a humane touch. Life insurance and retirement accounts Apart from life insurance, one of the principal contributors for unclaimed properties are orphaned 401(k) and individual retirement accounts. Employer-sponsored retirement plans sometimes automatically enroll employees unless they elect otherwise. Oftentimes, the contributions continue, while 30% of the employees are neither aware of the contributions nor their employer contribution matches. Employees who shift jobs—for better opportunities, M&A, closure of companies, or relocate—leave their contributions unclaimed. These assets are transferred after a dormancy period of three to 15 years to the state treasuries as unclaimed property. There are over 24 million 401(k) accounts holding USD 1.35 trillion in assets that and have a high probability of being declared as unclaimed properties. When finally, reclaimed, there is no market gain or dividend accrual for these assets. Mobile American workforce The American workforce is constantly on the move. On average, a person in the US moves residences 11 times during their lifetime. Reasons for relocations could be renting to owning, job relocation, better or bigger home, affordability, or change in family or lifestyle; it is also observed that their phone number changes every two years. Even the employer domain e-mails are changed with the career changes. All these conditions make it difficult to trace policy holders. The way forward The problem of lost connections and properties can be solved by a combination of different methods: Process The data provided in an application for insurance contains rich sources of information and can be used to track a policy holder's retirement plan, career footprint, and thereby the current address. Mandated by regulation, insurance companies can take up the task of locating a policy holder or a beneficiary. This can be designed as a process model powered by the technology in insurance. Technology Insurance companies can use reinforced digital communication channels, United States Postal Service updates, social networks, and intelligent search methods. A plan participant choosing a retirement plan from a provider may often have other investments made in the same company, such as mutual funds, individual retirement accounts (IRAs), and so on. Undertaking strategic search tasks using a customer ID and intelligent, automated investigations can boost the probability of locating the policy holder or their assets. Additionally, facial recognition, social footprint, agency, or advisor networking can expedite the process. Regulatory resources Several regulations such as 'auto portability' and government-sponsored tools like national association of insurance commissioners' (NAIC) life insurance policy locator and the 'abandoned plan search' database from the Department of Labor, enable policy holders or employees to locate and rollover previous accounts and policies. The major challenge is that the employees are unaware of such resources at the right time. While enrolling in a new plan after a job change, employees must be informed of their previous account balances. This can be automated using search tools and databases. Opportunities from the proposed model With technology and regulation supporting this critical business problem, there are lots of

opportunities for fiduciaries and retirement providers to serve as clearing houses for retirement plans. Fund managers would be interested in sponsoring these exercises as they will have opportunities to manage large funds when the rollovers of abandoned assets are completed. Insurance companies could consider reinvestment opportunities if they can mandate a search at every touch point of sale or enrollment. These value-added services will result in financial wellness for insurance customers, improve the corporate responsibility of the employers, and reduce the planned expenses for fiduciaries and providers. More importantly, this could contribute to retaining and enhancing the national retirement fund and liquidity. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Keeping Pace with the Dynamic Advancements in Remote Education Technology

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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. Blog J Ramkumar You have these already downloaded We have sent you a copy of the report to your email again. Significant growth in adoption of technology in the education sector was a reality much before the COVID-19 pandemic, with worldwide investments in education-technology (ed tech) surpassing USD 18 billion in 2019. When schools all over the world had to be closed because of COVID-19, academic schedules for over 1.2 billion students were disrupted. However, many institutions bounced back on time, thanks to tech experts who thought on their feet to tweak existing ed tech to facilitate remote learning frameworks with due resilience and flexibility. This transition has fast forwarded digital adoption by schools and universities as well as heralded a general attitude change to shift from offline to online learning. We are at an inflection point of driving both enhanced agility and greater resilience into education models globally, enabling learning continuity in the event of force majeure incidents and general improvement of educational standards. This new paradigm has hastened the expansion of institutions and e-learning for competitive unique value propositions. More organizations in the education space are embracing digital tech to help them scale up their range of offerings across touchpoints in the process, right from pitching for admission and orientation to completing courses and awarding certifications. Leveraging technology every step of the way All academic pursuits begin with admissions, and educational institutions need to pitch their unique value propositions to maintain a healthy enrolment to admission ratio that has a bearing on their revenues. Successful organizations will be those that achieve their target enrolment ratio by driving home the promise of a superior experience for students. Universities can achieve this by harnessing the limitless potential of sophisticated digital technologies to innovate and expand their offerings to include blended teaching and self-paced learning models with integrated simulation elements. Actualizing blended learning through digital solutions Recent studies[1] point that students who learn online retain 25-60% more information while those who learn in a classroom retain only 8-10%. This advantage is attributed to factors such as technology-enabled personalization of learning that allows students to study at their own pace, among other things; they can now choose to go back and re-read, skip, or skim through subjects as desired. Fact remains that conventional classroom-based schooling methods have their own manifested benefits such as the multisensory approach, and peer modeling elements; e-learning can compensate for the missing attributes through immersive learning experiences powered by augmented reality and virtual reality (AR-VR), and integrated learning platforms with collaborative tools such as blogs, quizzes, assignments, chats, surveys, and peer to peer learning communities. Ultimately, the tectonic shift to remote teaching is steadily nudging educational institutions to be future-ready with digital platforms that support both synchronous and asynchronous teaching and learning methods.

Simultaneously, there is also a growing need for adopting evolved, transparent assessment techniques to validate the effectiveness of these novel approaches to learning. The saving grace of technology in upholding credibility One challenging aspect of online education is tied to the stringency and credibility of assessment and grading techniques deployed by schools, universities, and other platforms that have shifted to e-learning. These critical success factors ensure timely delivery of academic programmes. Moreover, they also ensure that students have nothing to compromise in the process of e-learning. Advanced digital technology platforms can help institutions close this gap by facilitating a mix of assessment methods such as pen and paper, computer-based, OMR, and hands-on modes of examination. Digital solutions have evolved to support schools in administering and conducting secure remote examinations in both proctored and non-proctored modes. Such solutions can also help institutions enforce diligent cybersecurity protocols to prevent and foil potential breaches in the process. Smart solutions are also transforming the subsequent post-assessment processes such as evaluation, grading, publication of results, and student promotions. With artificial intelligence (AI) driven platforms, integrated with a multitude of evaluation modes such as key-based, on-screen human marking, image-based, and algorithm-based assessment techniques, educational institutions can improve accuracy and achieve timely closures at once. The imperative to get smart and stay relevant The global education technology market is burgeoning, and is predicted to reach a staggering USD 241.58 billion at a compound annual growth rate (CAGR) of 19.34% by 2026. Growing opportunities also imply increased competition. Educational institutions should gear up to analyze and reorient their operating models along the lines of smart technology to stay relevant and successful. Players in the education sector should evaluate if they have the required digital technology backbone, and whether the key stakeholders involved are adequately trained to leverage the advanced technology and tools at hand. Asking relevant questions about the scalability of their technology, and the maturity of their cybersecurity frameworks will help institutions competitively improve and deliver positive experiences to intended users beyond the confines of place and time. For more information, Visit Education Business Unit Page The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Explainable AI: Steering Clear of AI Pitfalls in Insurance

The insurance industry has embraced Artificial Intelligence (AI) across the value chain including identifying potential customers all the way to assessing risks and settling claims. It has enhanced customer experience and ensured faster, better and cheaper business processes. While AI is considered a game changer, it does have its own shortcomings. Insurers should be aware of the possible bias in the decisions made by AI and its vulnerability to adversarial AI. The Bias Factor: Need for Explainable AI The bias in AI-made decisions has been observed across a few implementations in the industry. Some recent examples include Apple's credit card[1] discriminating against women, mortgage algorithms[2] charging higher interest rates to black and Latino borrowers, and a healthcare group's algorithm[3] favoring white patients over black patients. Research has shown that computer vision algorithms[4], speech recognition systems and text classifiers[5] can be compromised. These bad decisions and inherent weakness have led to questioning AI's performance and adoption in the industry. The visible AI bias has meant the customers have begun

doubting the accuracy and fairness of the decisions and businesses need the means to audit these decisions. Explainable AI (XAI) can come to the rescue. While XAI cannot unravel the black box nature of models it can offer a set of tools and techniques to help better understand the inner workings of the model or the potential influences for a particular decision. Sales and Marketing, Underwriting and Claims have a large number of AI use cases in the insurance value chain. These business functions have direct interactions with the customers. Hence, it's imperative that the models used here perform as intended. Any evidence of bias or incorrect decisions can lead to losing customers, reputation damage and possible legal and regulatory actions. The Problem: AI bias in Insurance Industry A rating algorithm leverages AI to assess the risk features and quotes a premium. The algorithm could be quoting a higher premium for a specific gender or a race or worse it could be declining coverage based on the protected attributes (race, color, gender, religion, disability). Given several carriers deploy AI to evaluate claims raised by individuals, this model could potentially flag a valid claim as fraud based on the said attributes and deny payment. The general bias in any model is instituted because of the inherent bias in the data used to train the model. XAI techniques like Shapely Additive Explanations (SHAP)[6] or Local Interpretable Model Agnostic Explanations (LIME)[7], highlight the precise input features that played a key role in influencing the algorithm to make a particular decision. The data scientists and actuaries can then determine if these features are protected attributes or contributing to the bias by acting as proxy to protected attributes[8]. For example, if the model was trained using data from a specific geographical region as input with a higher population of one color or race and few consumers, these attributes would have translated by the model to induce unintended bias. Vulnerability to Adversarial AI Post COVID-19, carriers are using images and videos to carry out business including claim inspections. The customers have taken to posting pictures or videos of the damaged asset. The model assesses the damage to determine the amount to be paid. However, criminals can trick the model by manipulating pixels on the image (known as Adversarial AI) to make false claims. Similarly claims may be rejected by the model due to unwanted objects or noise in the image. Using XAI techniques like Saliency Maps[9] and Occlusion Maps along with GANs (Generative Adversarial Network)[10] one can strengthen the AI models to improve accuracy and thwart claim fraud. The Bonus: Business Insights XAI can also generate insights and make the insurance business more profitable. Insurers can build AI models with the vast data and apply XAI techniques like SHAP to identify the highly influencing attributes[11], which can be used to make the right decisions. This is particularly useful during the launch of new products. Policy data can be used to identify the needs of potential customers, which will help improve conversion ratios and reduce churn. Claim data can also highlight features that contribute to heavy losses thus classifying a good risk from bad ones. This can help the insurer with competitive pricing or avoiding the product. Conclusion Insurance is a heavily regulated industry. Article 22 of GDPR, Algorithmic Accountability Act of 2019 and many other US State House Bills mandate transparency and fairness in the automated decision making process. XAI offers much-needed transparency, security and auditability to the intelligence used in business processes. It can also help eliminate bias and fight AI fraud prevalent in the industry. Above all, it can ensure trust, which is a must for AI to thrive and

grow in the Insurance business. In essence, simple AI is no longer adequate, and the insurers need to leverage XAI to strengthen the use of AI as well as safeguard themselves from fraud, which in turn will ensure a well-rounded adoption of AI.

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Healthcare breakthroughs: A union of automation, AI, and analytics

The healthcare ecosystem aims to have a healthier society by providing accessible and better quality of care with superior member experience at a reduced cost. However, the healthcare industry is challenged by increased cost pressures and shrinking margins, along with the struggles of adapting to rapidly changing regulations, payment reforms of value-based models, and increased consumerism. This is nudging the healthcare industry to continuously accelerate business and technological transformation and be future-ready with respect to people, process, and technology. Moreover, the COVID-19 pandemic has created a greater need for business transformation in healthcare as the existing workforce and technology issues exacerbate the broken and interdependent processes. This is observed even for industry-leading automated-processes like claim processing. Transforming healthcare operations An individual becomes a part of the healthcare

ecosystem when they purchase a product or locate a physician for treatment. The journey continues as they enroll in a plan or schedule an appointment with a primary care physician (PCP). It is the responsibility of the payer and the provider to help the member navigate this journey and tackle the issues at every touchpoint. The existing inefficiencies in the processes are the biggest hurdles that enterprises must overcome to provide seamless front-end and back-end services. Bringing process standardization and minimizing variations within a process are the first steps towards reducing operational inefficiencies. These inefficiencies intensify further due to multiple legacy applications, fragmented member data with minimal interoperability, lack of skilled resources, and other similar issues. Several plug-and-play solutions introduced by organizations to drive efficiencies often increase the burden on existing IT infrastructure and prevent enterprises from being agile. Having a single platform appears to be an ideal scenario but is not feasible for all organizations. That is where digital transformation solutions help organizations drive seamless and efficient operations by giving the machine the 'first right of refusal' to augment human capability through automation, analytics, and artificial intelligence (AI). This approach drives exponential business outcomes by enhancing end-to-end customer experience. It can be implemented across the value chain of payers, providers, and pharmacy operations like member onboarding, network management, patient access, claims processing, collections, wellness management, contact center, regulatory reporting, etc. Holistic approach to process transformation in healthcare Healthcare organizations must adopt a holistic approach towards automation for business process transformation. Appropriately selecting the right automation candidate - that has an impact at an organization level - for improving business KPIs and impacting the user journey is the ultimate success for any automation. For example, the high call volumes for claims could be due to incorrectly processed claims by the claim's adjudicator. Instead of enabling technology solutions like a chatbot for member services, ensuring the claims are correctly processed the first time will help drive efficiencies in the member contact center and achieve the required outcome. AI in healthcare - A paradigm shift Apart from traditional robotic process automation (RPA), AI is heavily explored to bring about intelligent automation in healthcare. Besides automating rule-based process steps, these technologies bring a paradigm shift by supporting strategic decisions through machine learning (ML) and deep learning algorithms. It can recognize patterns and help with intelligent insights and predictions that can be effectively leveraged across the healthcare ecosystem like clinical data extraction, radiology image interpretation, understanding the disease progression, treatment outcomes, and care management. It can also help identify patterns in claims denial for providers or incorrect claim processing by payers. Healthcare analytics - Unlocking the real value of data Though we bring about automation and AI to transform operations, all the issues cannot be addressed unless there are facts to substantiate the root cause and deliver value. Analyzing the data generated by multiple processes helps strengthen such facts. This data must be collected from siloed operations and viewed holistically not merely for reporting but also to identify waste in the system, enable process standardization, drive automation, and understand the drivers of operational inefficiencies. While data is the universal truth, unless the real value of data is unlocked, it remains incoherent. Hence, a data-driven organization must

utilize operational and predictive analytics to transform operations from being reactive to proactive. Summing up The willingness to explore various dimensions of transforming processes and adopting relevant changes faster can lead to exponential and purpose-driven growth of healthcare organizations. Ultimately, this will help healthcare organizations provide exceptional member experience, focus on the greater quality of care, improve margins, remain competitive, and be resilient to unseen challenges like the pandemic. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Adopting New Pharmaceutical Commercial Models to Outpace Change

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Transparent, connected, and agile networks to track end-to-end drug movement is important. Leveraging advanced technology such as blockchain to track the quality and reduce the chances of counterfeit is essential. The framework should be able to track potential shortages, excessive stocks of medicines nearing expiry, and much more. Implementing automated synchronization, determining stocks for each medicine geographically, and prediction simulation for increasing forecast accuracy may help in bridging the supply-demand gap. Pharmaceutical pricing is important for making essential medicines affordable to the entire population. E-pharma companies that are dominating the market can also offer teleconsultation, to provide immediate access to quality healthcare for all patients. Conclusion Transitioning to NCM demands an agile model that adapts swiftly and responds to the industry trends that influence the patients' overall care. Pharmaceutical companies are applying a set of powerful levers - efficiency, effectiveness, and innovation, to transform not just commercial operations, but the entire enterprise at large, making it imperative for promotional models to adopt a customer-centric and insights-driven approach. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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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Challenges in Future-proofing Applications on the Verge of Obsoletion

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during the transformation of legacy technology (mostly C++ to Java), can be addressed with the following solutions: The journey ahead Enterprises that transform their applications from legacy tech stacks to modern technologies are likely to face the aforementioned challenges. However, by utilizing development approaches that shift the focus of development from coding to modeling, the transformation of legacy applications can lead to platform independence, enhanced productivity, and uniform quality. The adoption of a manual approach for such a large-scale endeavor will be time-consuming, effort-intensive, and expensive. Thus, the ideal approach to modernization will involve the assistance of an intelligent automation platform, which will help enterprises by upgrading the underlying legacy code and enabling cloud-readiness. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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The Next-gen Serverless Banking Paradigm

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infrastructure will be deprovisioned to save cost. For example: a bank publishes a new payment application, and its popularity is unknown initially. In such cases, few modules of the application can be developed and hosted on a serverless compute platform which will be resilient enough to scale up and down based on the usage of the application. This results in dynamic workload handling in an easy and cost-effective way and with reduced time. Data and analytics: Cloud-based serverless services are available as platform-as-a-service (PaaS) or managed services. This includes serverless extract, transform, and load (ETL), databases, reporting, and query processing services. These services can be used to implement multiple banking use cases, such as data gathering and ingestion in a data lake (single source of truth). PaaS models can also be used to transform data into multiple formats for different lines of business. Such serverless services can be leveraged for AI or ML-based reporting, processing of unstructured trade data available through feeds, and resource-intensive auditing functions for processing events and logs. They can also be deployed to detect anomalies and inaccuracies in payment or application information with predictive analytics and ML through event-driven data processing. Conclusion Serverless services provide an opportunity to release legacy infrastructure and leverage the public cloud as much as possible. The benefits that the serverless paradigm provides make it viable for many event-driven as well as microservices-based architecture patterns. However, these services are unlikely to fit in all scenarios. As most of the serverless services are multi-tenant and public, which are exposed to the internet, they are incompatible with critical banking applications. Banks must consider additional security aspects while implementing applications using serverless services. The best way to implement applications using serverless services is to perform a rigorous assessment of an application or process while also focusing on aspects like security, cost, infrastructure, monitoring, and tracing. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Importance of Blockchain Marketing in Life Sciences

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information exchange between patients and other parties in the value chain is critical. As more health records are available in electronic form—including the data generated from wearables, social media, and digital therapeutics—a secure facility for data sharing is a pressing need. Imagine a scenario where a doctor prescribes a traditional medicine as well as a digital therapy, such as a companion app for smart phones. The data from both the therapies can be securely shared by the patient with the doctor, the drug company and even disease experts, using a blockchain-based electronic record system. This will improve the medical treatment and help develop personalized, patient-centered care plans. Blockchain-based authentication is more secure than traditional username and password for accessing online services. Since many pharma companies have multiple online touch points with HCPs and patients, streamlining authentication into a single methodology would be a vast security improvement. Additionally, with blockchain's distributed public key infrastructure, passwords will no longer be required. For privacy, while storing personal data on the blockchain network, the owner can decide which element(s) of the data can be shared, and with whom. Each block in the chain is encrypted and is protected from being stolen, deleted, copied, or falsified. Blockchain ensures that the medical information shared between pharma companies and HCPs or health care organizations (HCOs), retains its integrity. The Internet of Medical Things (IoMT) depends on access to the internet to share medical data from wearables, sensors, and other devices. It is possible to create decentralized networks that enable communication between inter-networked devices without the risk of being hacked. To ensure that correct and on-brand information about new product launches or new market entrants reaches the end users, blockchain can provide a platform wherein only genuine advertisements for a medicine, therapy or digital service can be shown, at the right time with lower publishing and tracking costs. This eliminates click fraud—the act of illegally clicking on online advertisements to exhaust a company's advertising budget or increase site revenue—letting the user view relevant, genuine advertisements. Given the industry's risk averse nature and stringent regulatory guidelines, there are very few use cases of blockchain in the commercial life sciences space today. Although the industry has been slow to adopt blockchain, it is here to stay and transform digital experiences for decades to come. In life sciences, where customer experience is key to increasing brand awareness, recall and improving customer loyalty, organizations that are ready and willing to implement blockchain in their marketing strategy and ecosystems, will be seen as disrupters. Companies that are willing to take a little risk can potentially change the dimension of customer experience. They can start with small, iterative steps, such as undertaking trial pilots. Although there are hurdles to overcome, the potential benefits are enormous. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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All Roads Lead to Europe Sustainathon 2022

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collective effort to build a sustainable future. As we are the last generation for whom climate action is a choice, it is vital we also both listen to and foster emerging talent across the continent in this effort. Our Europe-wide Sustainathon will do just this. This unique competition will set out to develop solutions that address our most pressing environmental issues and then provide the collaborative resources to make them a reality. We're calling for university students and young professionals with a passion for problem solving to come and work with us and our wider network of academic and business partners. This is your chance to see your idea become a reality as part of our seven month incubation programme at TCS Pace Port™ Amsterdam. Fast experimentation We're setting out to create a platform for great ideas to be heard, examined, and quickly developed. We want you to imagine your vision for a more sustainable Europe mapped out with experts. Think about how quickly your ideas could become real, given unique access to resources and as your team collaborates with our ecosystem, bringing together skills from academia, industry, finance, and government. Advanced digital technologies can help unlock solutions to the hidden sustainability challenges we all encounter in our day-to-day lives, and we plan on using our global reach to empower young minds to create, develop and execute their innovative ideas. For this competition, we've focused on UN's Sustainable Development Goal 12 and worked with our wider network to create five critical challenges — eliminating pharmaceutical waste, fostering more sustainable online shopping habits, cutting down everyday water waste, filtering microplastics out of food and water supplies, and stimulating pollinator restoration and habitat protection. Our Pace™ team have outlined problem statements to each of these for our competitors to set out to solve. Making ideas real We'd love you to make a difference in our journey towards shaping a better world. Already open for registration, a three-day hackathon event will take place in February and a panel of judges from across TCS and our wider partner network will select winners to have their ideas incubated at our innovation hub for Europe. Winners will then have an opportunity to present their concepts at a flagship event in November. A greenfield for driving transformations and making rapid digital progress, TCS Pace Port™ Amsterdam will enable the winners to bring their ideas to life, by combining cutting-edge innovation with the Tata Group's network and the knowledge of Europe's biggest tech companies. This Sustainathon brings together TCS' holistic vision for the future, which is based on problem solving and fostering long-term sustainability through better technology, efficiency, and ideas. It's also aligned with the European Green Deal, the EU's strategy for growth and a sustainable economy, where no person or place is left behind. We want to drive a better future for our planet and for every stakeholder. That's why we're committed to co-creating solutions and incorporating ideas from the brightest, emerging minds, so whether you are studying, or starting your career, or have teams within your organization or network you can share the challenges with, this is an opportunity for everyone to make a positive impact. This blog will be updated regularly throughout the ideation and incubation period of the European Sustainathon. So, what are you waiting for? Join the conversation and help shape the future! Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Register for our email newsletter to get the freshest takes, straight to your inbox. I consent to processing of my

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Opening Doors for Women in Cyber Security

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and they are gunning for leadership positions. Buoyed by consistent improvement in the educational level of women and a strong rise in women enrolling for online courses, female cybersecurity workers are asserting themselves. And TCS has always pushed the frontiers of what is possible, especially for women. Allow me to present my own case as evidence. What I do Cybersecurity has been occupying the front pages for some time now as the attacks and defenses keep intensifying almost in lockstep. Without using a lot of cybersecurity jargon, let me try to give you a fair overview of what my work basically involves: when it comes to enterprise sustainability, compliance to regulations, data privacy, and dealing with the myriad threats that are always lurking on the internet, our customers rely on our services. We help them traverse the complex ecosystem that surrounds protecting the enterprise—their users, their customers, their data and their network. At the highest corporate level, we effectively assure the board that all is well with the enterprise. Where it all began I started my career at TCS as a trainee, when I was recruited from campus. Since then, it has been a highly eventful and equally satisfying 24 years. From my first role as a developer, I gradually moved up to customer-facing roles. I have been Program head, Pre-sales head, and have been in Delivery as well as Operations. When the opportunity came my way to grow a new business unit called Business Process Management, I volunteered for it. It was a career-changing move because it helped me get hands-on experience of how to set up and run a practice. From there, I went on to head the Intelligent Process Automation unit. After I was in that role for some time, an opportunity opened up through TCS' LeaD (Leadership and Diversity) program for the role of the head of Cyber Security, and I was selected. When in doubt, look within I believe for anyone, especially for a business leader, being self-aware is crucial. Self-awareness extends to being aware of the good and the bad in your ecosystem as well. This includes giving credit where due to others, surrounding yourself with people better than you, honing sharp listening skills, conflict resolution, and consensus management. And these things become easier to master when one starts with knowing oneself well. Ask yourself—what am I good at, what am I not good at, where do I need help, when should I ask for help? When you lead by example with such an approach, your team feels inspired and everybody gives their best; an inspired team is a productive team. What keeps me going Professionally, what keeps me going is the knowledge that every day is truly new. There is no telling what you will see in your mailbox the next morning. Technologies change every day, cyber threats evolve every day, and enterprise priorities mature every day. It does not matter what you knew and were doing for the past two decades as long as you are willing to learn, grow, and innovate as you go forward. Changing the game for women in tech Over my substantially long career at TCS, being a woman has not affected my everyday job, but that is just me. It is quite clear that, generally speaking, women in tech do need a leg up. They deserve the means to be able to navigate the well-entrenched "old boys' club" — with perhaps an "old girls' club"! One is centuries old while the other is a few decades old, so you see the gap we have to close. That is why we need to foster ecosystems such as women in tech, women in cyber, and women in data. We need special networking opportunities for women and different ways to express our aspirations and abilities. We need to support one another — by sharing our thoughts, personalizing our brands, championing ourselves, increasing our reach,

and encouraging fellow women to aim higher. And all great things start with a small step—exploring opportunities at www.tcs.com/careers. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 =======================

The urgent need for sustainability in life sciences operations

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have these already downloaded We have sent you a copy of the report to your email again. Sustainability has become increasingly important for companies across all industries. Placing sustainability at the center of the business strategy can equip organizations to better respond to the volatility triggered by unpredictable future challenges. The COVID-19 pandemic is one such example. It accelerated the digital transformation in the industry and brought about opportunities for technological advancements. Life sciences companies had to shift focus towards improving patient engagement and accessibility, delivering real-time patient outcomes, and postponing the implementation of sustainability goals. This further led to an increase in the amount of waste the industry produced. Environmental issues in life sciences are complex and range from increased regulatory pressures to exponentially increasing resource consumption. Enhanced awareness among consumers has led life sciences companies to acknowledge the urgent need for sustainability, set goals, and sketch an innovative plan to attain them. This is more evident from the fact that industry leaders such as AstraZeneca, GSK, Pfizer, and other prominent players have pledged to reach net-zero emissions by 2050. Most of these companies' plans categorize the initiatives as environmental, social, and governance (ESG).   An illustration demonstrating the environmental, social, and governance (ESG) framework, aligning it with the steps that life sciences companies can take to overcome key sustainability challenges. To improve environmental sustainability, companies can identify potential environmental hazards and risks associated with active pharmaceutical ingredients and develop products that have a lower environmental impact, reduce upstream scope three greenhouse gas (GHG) emissions from purchased goods and services, implement circularity to reduce waste, and minimize animal testing in a laboratory. For better accessibility and affordability, organizations must improve patient engagement and awareness of disease dynamics, optimize the clinical trial process (efficiency, efficacy, diversity, and safety), improve patient accessibility (which was severely impacted by the COVID-19 pandemic), and offer value-based dynamic pricing. For improved governance, life sciences companies must improve clinical trial transparency, quality, and safety; process pharmacovigilance data effectively; increase supply chain transparency to survey for human rights violations; safeguard data privacy; and ensure secure transfer and end-to-end (E2E) traceability of drugs in a remotely controlled environment. The focus here, as per Figure 1, is on the direct relevance and impact of environmental sustainability initiatives on life sciences industry operations. Companies are aiming to reduce environmental impact in the following key areas: Waste management through 'green chemistry' Pharmaceutical waste is an increasing global concern. At the current pace, the amount of pharmaceutical waste leaching into waterways could increase by two-thirds before 2050. This calls for an immediate need to reimagine and adopt new ways of chemical synthesis to minimize waste. The reagent used in the drug manufacturing process is hazardous, which goes to waste after the reaction is complete. For synthesis of an active pharma ingredient, Amgen invested in a continuous-flow ozonolysis process to perform the oxidation. The reaction is carried out in an aqueous mixture of an environmentally benign solvent. This eliminates the potential of heavy-metal contamination. Merck applies green chemistry techniques for synthesis, ultimately developing a green and

sustainable commercial manufacturing process. Furthermore, the alkylation step, which involved highly hazardous chemicals, has been replaced with a safer and more robust process. Technology also plays an important role in the arena of waste management. For example, IT-led

complex bioremediation algorithms are being leveraged to understand the link between microbes, which enable complete degradation of industrial waste. A graphic highlighting seven of the 17 sustainable development goals (SDGs) that are most relevant to the life sciences industry. These include good health and well-being, clean water and sanitation, affordable and clean energy, sustainable cities and communities, responsible consumption and production, and life on land. Wastewater treatment with newer technologies Wastewater generated in manufacturing operations from life sciences facilities contain high levels of toxic chemicals. As per research from the US Geological Survey (USGS), wastewater treatment plants that receive a discharge from pharma manufacturing facilities have extremely high levels of active pharma ingredients, from 10 to 1,000 times higher than other plants that received no such waste. With such adverse impacts and resulting regulatory pressures, life sciences companies are undertaking several new approaches to treat wastewater so that it can be recycled. Novartis has built a new wastewater treatment plant in its Romanian facility, equipped with the latest carbon-filter technology to purify water from active pharmaceutical ingredients before discharge. Janssen Pharmaceutical recycles as many solvents as possible. Furthermore, all waste effluent is treated in their ultra-modern water-treatment plants. Smart technologies like IoT, image analytics and deep learning provide real-time insights on wastewater chemical composition, sewage blockages, pH, or turbidity analyzers, and the like. Acting on these insights can ensure a smooth water treatment process, positively impacting the environment. Sustainable packaging: The big first step Many life sciences companies are rethinking pharma packaging. For example, Pfizer is supporting a recycling initiative for one of its brands, which has resulted in 60% of all packaging being returned to their recycling center. Companies are making calculated moves using cutting-edge innovation and critical thinking. For instance, robotic arms empowered with smart vision are being used to optimize packaging spaces. Technologies such as RFID, printable electronics, cloud, drones, and 5G can integrate well with newer packaging formats, while ensuring seamless tracking throughout the transit journey. Sustainability-first for life sciences Life sciences companies are continually working towards reducing the adverse impact of their operations on the environment. To achieve the formidable goal of net-zero emissions by 2050, they need to keep exploring, innovating, and implementing new practices in their core processes such as R&D, manufacturing, and supply chain. The convergence of life sciences and new-age technologies such as IoT, image analytics, drones, and 5G is key to building a sustainable planet. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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Wind Energy Gets a Much-needed Boost with Digital O&M

Many countries are relying on wind energy among other renewable resources to tackle climate change and reduce carbon emissions. However, it's a capital-intensive sector and wind turbines like any other asset require regular operations and maintenance (O&M) to prevent unplanned breakdowns and repairs. The average shelf life of a wind turbine is 20 to 25 years. This means that many onshore wind farms in Europe and the U.S. installed before the year 2000 have already arrived at the end of design (EOD) life. Wind farm operators will need to find more profitable ways to run their business, or risk decommissioning wind assets and writing off the investment. The proliferation of new digital technologies has given an opportunity for operators to increase the useful life of wind turbines and optimize the power yield. According to

WindEurope, out of 22GW of wind power that is coming to its EOD life, 18GW will be eligible for lifetime extension (LTE) projects. The cost of inaction is high—O&M needs to become more proactive Traditional O&M activities centered around routine operations and scheduled maintenance, an approach that relied on reactive decision making with the hope that everything was working fine. In worst case scenarios, undetected problems would result in expensive, corrective actions. In fact, O&M accounts for approximately 10 to 20% of the total cost of energy for a wind project. In addition, many wind farm owners signed expensive maintenance contracts to fill the O&M skill gap. While monitoring systems such as SCADA (supervisory control and data acquisition) have been used for a while on wind farms, what's missing is the sophistication needed to arrive at insightful decisions during the early stages of a problem. The ability to extract information from data and interpret outcomes for early detection of failures is critical. Digital O&M has now made this possible, giving wind operators more control over turbine performance. Utilizing the power of data with digital twins and AI Digital technologies use data as a vehicle to tackle O&M business challenges, as opposed to using it to define those challenges. Sensing and capturing accurate raw data is a critical first step. Many windfarms that were commissioned in the last two decades are not equipped with sensors found in modern wind turbines. Unobtrusive computational sensing through radar-based acoustic signature, drone-based imagery, and other related technologies enables multi-sensor fusion for enriching data capture across different components. The next step is employing data management and transformation techniques, including cleansing and merging the data to make it fit for consumption by analytical engines. Data engineering is just one piece of the puzzle. Data-driven digital twins of the components and its adjoining processes combined with predictive analytics will generate insights on performance to support proactive decision-making and corrective maintenance. When combined with artificial intelligence and machine learning, analytics can mine new parameters and lead indicators from historical data. This data can be tracked and analyzed using advanced algorithms to understand the current and future state of critical wind turbine components. But analytics will be irrelevant, if the data and insights are not available to the operator, engineer or business stakeholder in the right format, in a timely manner. Many enterprises with a broader O&M vision are using 'servitization' by linking analytics with ERP (enterprise resource planning) systems. This ensures a process-driven approach in which information is actionable, and it triggers the right response. Moving towards reliable, low-cost wind energy Wind power represents 4.4% of the total generated power and is likely to increase up to 20% by 2030. With governments reducing subsidies, wind farms have to find new ways to cut costs and stay competitive. Digital technologies are the way forward. It will reduce downtime, cut O&M costs and improve the operational efficiency of wind turbines. The result is increased clean energy production at low costs. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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How IoT is Transforming Damen's Business Journey

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network should prove even more significant in the long term. This collaborative journey began with TCS' unique proposition to Damen. "Damen wanted to see how data, which was being processed in silos, could be brought together in a common platform that could benefit entire ecosystems," said Reshmi Devan, the Triton Project Manager at TCS. "That's why the idea of collecting this into a single platform for processing was born." This new platform is now helping to define the future of the maritime industry. A new course International shipping carries around 90% of global trade. However, the industry is under pressure to evolve. In light of the Paris Agreement climate goals, the International Maritime Organisation (IMO) wants its members to cut total annual greenhouse gas (GHG) emissions by at least 50% by 2050 compared to 2008. At the same time, the pandemic caused unprecedented disruption to the maritime economy leading to intense competition. Amid this flux, Damen wanted to evolve its operating model from 'ships as a product' to 'vessels as a service'—its vision was to support clients across the entire product lifecycle. However, to achieve this it needed to become one of the most digitally connected shipbuilders. Damen reached out to TCS, its partner in innovation and purpose-led growth. TCS believed in Damen's vision of becoming a more innovative and integrated player in the maritime industry. To do this, they needed to better acquire data from separate components across their fleets by building a bespoke IoT platform for all end users. Unlocking potential Devan and her team knew that the existing IoT sensor network in Damen ships held the potential to deliver powerful KPIs on fuel efficiency, maintenance, and overall ship performance, but the insights they had were scattered. "The data was processed in silos. It was not actually producing any useful insights. We needed a platform that could support a combined analysis," she said. TCS offered its insights from growth and transformation ventures with customers across other industries to provide its unique expertise to Damen in this shared journey. "The way we value innovation in our organization, it's the same with Damen. They gave us full freedom to experiment and take risks. It was a collaborative journey," Reshmi added. The Triton project moved fast, explained Vaikundam S. Velayudham, IoT business development manager at TCS. "Within three months, TCS laid down the foundations for the cloud-based IoT platform. In six months, we had a live dashboard combining real-time data from thousands of sensors connected to a Damen tugboat." The platform also started collecting data from vessels which could be used for analysis at later stages for functions such as insurance, warranty support, predictive maintenance, and design improvisations. But the project wasn't always plain sailing, recalled Reshmi. "It was a highly dynamic situation with a huge volume of data to deal with. For every vessel, there was multiple pieces of equipment and multiple vendors coming into picture. We needed to build a unique architecture to deal with those requirements." Sustainable ships However, when the project was complete the benefits became clearer. The ability to monitor engine performance more closely helped ships with Triton improve fuel efficiency by around 12%. Users were able to use the dashboard's insights to fine-tune preventive maintenance that would help avoid expensive repair bills and enable ships to stay at sea longer. In addition, the sensor data helped ships servicing offshore wind turbines to remain stable in turbulent waters, further benefiting the wider offshore energy value chain. For Damen, Triton is helping it become a more sustainable business in the long term, on track to reposition itself as a

leading provider of ships as a service. "The valuable data that we are collecting securely from the vessel is now being used in a number of downstream applications within Damen," says Reshmi. "We are seeing a change, with other departments within Damen now trying to leverage this data to improve their own efficiency." Building on Belief A further benefit of Triton is its ability to evolve for future needs, and TCS is continuing to adapt the capabilities of the platform. The team is now exploring the potential of digital twin technology to give external partners additional capabilities. "For a successful digital transformation, it is important to start with belief and make sure the right stakeholders are a part of the journey," said Raja Shan, Head of Business Development, IoT and Digital Engineering. "Damen's journey from a ship builder to a maritime solution provider is a proven result of this belief and its ability to create the right ecosystem. From the onset, the TCS team believed that Damen Triton will shape the future of maritime industry." The story of Damen's connected sensors is set to continue The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Blog Kala Desai You have these already downloaded We have sent you a copy of the report to your email again. As global emissions reach record levels and show no sign of slowing down, global warming and climate change have emerged as the most complex and acute challenges of our time. In the face of these global adversities, collective action powered by new scalable technologies and intelligent solutions will enable us to leapfrog to a more resilient world. These sentiments were echoed at the 26th United Nations Climate Change Conference in Glasgow (COP26). At the summit, the net-zero banking alliance (NZBA) committed to aligning their lending and investment portfolios with net-zero emissions by 2050. They also committed near-term action with accountability, using robust science-based guidelines and a target for 2030 or sooner. Over 270 banks have joined this cause and have started working on a strategy based on the principles of a responsible banking framework. The most important principle is to work with customers and encourage sustainable practices based on the Paris Climate Agreement. Opportunity for banks to influence the net-zero narrative With the estimated number of internet users surging to 4.9 billion in 2021 from around 4.1 billion in 2019, strong global growth in internet adoption is evident. These users have access to smartphones and are mostly digitally connected. Moreover, most of these user activities and movements are tracked by tech giants like Google, Meta, and Amazon for their targeted ads and revenues. On their part, banks should join hands with these tech giants that collect massive customer data and use it for targeted advertising, structure standardization, and the enforcement of net-zero initiatives and practices. By considering the environmental, social, and corporate governance (ESG) criteria, this responsible banking framework can be further modified based on the customers' regional, cultural, and personalized requirements. The entire process should be unified, agile, and open to the public. On a high level, the coherent guidance framework can be categorized into five components: Education To start with, this section of the framework can bring in insights into the basic concepts of global warming and educate customers on its effects on the planet. Along with this, they should also be made aware of the current scenario, actions taken by governments and non-profit organizations, and most importantly, engagements expected from them as individuals. In addition, banks can incorporate knowledge tests and training programs into this section for customer and community education. Assessment Banks can use simple checklists to assess their customers' carbon footprint. If needed, banks can team up with technology companies that provide calculators to determine

customers' current energy consumption. Families and even entire neighborhoods can be encouraged to participate in this program. Guidance and execution Once customers assess their carbon footprint, guidance and access to various applicable sites on how to adapt to a lifestyle that will reduce carbon emissions should be provided. Customers can plan their future actions to help reduce their carbon footprint accordingly. These actions can span from simple tasks such as replacing the pipeline in the house to a big decision like buying an electric car. Banks can actively help customers with all these decisions by providing support – in this case, by making lists of eco-friendly plumbers, car dealerships, and borrowing options available to customers. Tracking and performance Customers should be able to monitor or track their performance and take corrective actions as necessary, irrespective of their location. For instance, the tracking must continue even if a customer moves to a different location. The entire system can be enabled through blockchain, ensuring a single record is available for each customer. Banks can maintain customer performance scores in a common source like credit score reports or customer identity records. Reward and recognition programs Customers can be rewarded with redeemable reward points for positive actions (PA) to reduce their carbon footprint. These PA points must be transparent and linked to customers, allowing them to access their data from anywhere and at any time. Moreover, all banks should have access to the PA points data through open banking and report these customer efforts for audit to the appropriate authorities. To be precise, if a customer has multiple bank accounts, the data should be accessible to all the banks for monitoring the customer's journey and reducing their carbon footprint. Besides, best practices followed by other customers can be made accessible to all customers. Partnerships for the people and the future To conclude, the strategy outlined above is realistic and feasible, and it should be part of the broader organizational strategic plans. Initially, there may be hindrances, and regulatory support is needed for this social cause. If administered and built correctly, NZBA's banking framework can create meaningful opportunities to accomplish the ESG mission of net-zero emission by 2050 – a win-win situation for banks, customers, and our planet. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Contactless Continuous Customer Experience in Life Insurance

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and offer the best and most seamless customer experience across platforms in order to compete and survive in an increasingly unpredictable world. Here are a few emerging use cases: AI – Facial image analysis for quotation Facial analytics can scan images and analyze numerous points to extract information, such as physiological age and body mass index (BMI), to determine whether a person is aging faster than their biological age. According to research published in European Heart Journal, advanced studies are in progress to explore how facial analytics may identify early signs of heart disease. Based on the analysis, insurance firms can generate customized quotations, and with consent from the customer, they can initiate the issuance process. Rolling out the applications in local languages through adequate testing will enhance global acceptance. Predictive analytics – Questionnaire for accelerating policy issuance Advanced technologies like predictive analytics can enable faster application processing and easier tailored coverage. Predictive analytics can be used to underwrite policies based on self-reported data. The data can be verified against the users' actual medical and pharmaceutical records by insurance regulators. Medical records can be analyzed by algorithms and compared with other respondents' data to make predictions about the lifespan of prospective policy owners. This can eliminate the requirement for medical exams for most of the customers and reduce the time and cost of approving and issuing policies. Wearables – Wellness programs for incentivizing healthy lifestyles and continuous engagements Today, life insurers are collaborating with organizations like Amazon and Apple to incentivize customers through wellness programs. Wearable devices and the associated mobile applications can measure the activity, heart rate, sleep, and tone of voice of the customers to gain insights into individual health periodically. Customers can be segmented into risk categories based on their health parameters, and recommendations and reminders can be provided for healthy lifestyles. Riskier categories can be provided with advanced activity trackers under upgraded wellness program levels. In addition, insurers can monitor and document customers who exercise regularly, eat healthily, and get periodic checkups. Based on this, insurers can incentivize customers for their movement frequency, intensity and tenacity of exercises undertaken and reduce the renewal premium amounts or provide reward points in their accounts. For instance, insurers can leverage behavioral economics in wellness programs, where wearables can be provided free at the onset of the program, and the total cost of the wearables can be recovered if the activity targets are not met. These wellness programs can also help build a closer relationship with the policyholders, increasing customer loyalty. In addition, healthier habits result in a lower frequency of claims, thereby reducing the claim cost for insurers over a longer period. Benefits Contactless insurance powered by digital technologies in different steps of the life insurance value chain will have a diverse and positive impact across stakeholders. It enables insurers with continuous opportunities to connect with customers in a highly relevant and contextual way. The three key advantages include: Accelerated underwriting Quotations based on facial analysis and health questionnaires can enable insurers to avoid medical tests requiring physical contact. With applicants' consent, insurers can leverage algorithms and analytics in the underwriting rules engine to significantly reduce the time to underwrite. Continuous customer engagement Wellness programs incentivize customers to adopt healthy

lifestyles and win rewards or reduce premiums. For instance, personalization on wearables can help individuals stay on track and alert insurers on respective customer efforts. Thus, based on the data, insurers can assist customers with recommendations, creating a win-win scenario, thereby increasing life expectancy for the customer and profitability for the insurer. Enhanced insurability With wellness programs, insurance can be offered to individuals who otherwise would have been considered non-eligible through traditional risk-matching underwriting criteria. The older but healthier population can also become insurable through these programs compared to age-based screening rules. To conclude One of the prime considerations for insurers in adopting contactless paradigms utilizing digital technologies and data will be privacy. Insurers should obtain appropriate authorization from their customers about information capture, storage and sharing, and data usage. Underwriters need to design the approach and methodologies so that individuals occasionally missing program-level activities are not penalized significantly. In addition, those following healthy behaviors during the program period must be incentivized proportionately. Cross-functional collaboration among underwriting, actuary, and data science departments will be key to gleaning insights for effective personalization and enhanced customer experience. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Improving the Participation of Gig Workers in Banking Institutions

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The first step will be to acquire talent, preferably through a bespoke internal platform or a third-party platform that is configured to the bank's requirements. In addition, banks can collaborate with organizations such as the Chartered Financial Analyst Institute or the American Institute of Certified Public Accountants (AICPA) to gain access to qualified professionals. This establishes the supply side of skills. Positions: The second step in this process is to identify and publish jobs that have a large volume, are non-core to the bank's function, are easy to adapt to, and do not expose the bank to undue risks (Example: training, sales, certain legal functions, auditing, and accounting). This addresses the demand side of skills. Performance: The third and critical step in the process is to rate gig workers on the platform in terms of the quality of deliverables, timeliness, and skill level. This will provide inputs for the bank to identify high-quality talent and engage them on a continuous basis. Looking ahead While hiring gig workers with the right skills is good, it is important to ensure that they are vetted as per the banks' policy. Banks should enlist the services of an FCRA (Fair Credit Reporting Act) compliant agency to verify gig workers' credentials before they are onboarded onto the platform. Banks should also limit the access of the gig workers only to the essential systems needed to perform their tasks. These steps will ensure that the security risks posed by gig workers are mitigated. At the same time, banks also need to deploy governance risk and compliance (GRC) systems and processes that keep them abreast of the evolving law governing gig work. This will ensure that the bank is able to avail gig services in compliance with the regulation. Temporary staffing through third-party agencies is a USD 195 Bn industry in the US, and banks are among the largest consumers of such services. With the deployment of the right platform and engagement with stakeholders on the supply and demand side, gig workers could fulfill 15-20% of temporary staffing needs. This will prove immensely beneficial not only for the gig workers but also for banks. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ======================

Adopting a user-first approach to develop efficient data dashboards

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information provided by data dashboards should be concise, crisp, and in real time. From an end-user perspective, all data visualizations on a screen should form a unified view. The main question that should be asked throughout the dashboard design process is whether the intended user interface is seamless and effortless for users to learn and work on. Pilot studies and focus group discussions demonstrating existing knowledge and prior success prove extremely valuable here. Relevant data dashboard screens Dashboards should allow users to have a seamless experience. The information furnished by dashboards should be precise, with a provision to have optimal visuals for each KPI. Visual tools such as graphs and charts present data in an easily understandable format. Understanding the purpose of each chart or graph helps users choose the most appropriate tool for requirements. For example, bar charts and column charts are primarily used to summarize data in categories or provide value-based metrics, whereas line graphs display continuous data over time. Pie charts display related category breakdowns, and a gauge chart measures KPIs against set targets. The most appropriate chart for a dashboard's end objectives should be chosen carefully. From a visual standpoint, RAG (red, amber, green) thresholds are critical to the presentation of KRIs. The role of user research in the development process The process of developing dashboards is centered on users and begins with creating user personas, collecting information about user roles, and mapping out user stories. User research plays a pivotal role during all stages of development and involves creating wireframes, testing, and validation. This can be used as a guide for developers through wireframes that contain action-oriented information to understand functional needs and eliminate gaps during development. User experience (UX) Users will judge any application on its ease of navigation and ability to reduce effort. Here are a few important aspects of any dashboard screen: Structure: The page should be structured in a way that draws attention to significant data points and follows UX standards. Colors: The use of monochromatic colors on a dashboard helps to provide a clean appearance. Contrast: Contrast, when used sparingly, can help communicate a point or quickly distinguish outliers. Repetition and consistency: Repetition and consistency across the board can make a design intuitive and engaging for the user. Responsiveness: A device-agnostic design format will add more value to the application. Conclusion Analytics play a vital role in the digitization process of clinical trials, especially with the plethora of data around us. Thus, it is imperative that dashboards are created with user personas and experiences in mind. A sound knowledge of visualization and UX principles will help develop and architect applications that add value to the pharmaceutical industry. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 ====================

Empowering clinical data management through emerging technologies

Evolution of technology largely hinges on a keen understanding of data and drawing actionable insights from it, ultimately supporting problem solving and decision-making. Technologies such as robotic process automation, artificial intelligence (AI), machine learning (ML), and natural language processing (NLP) can help in standardization and pulling actionable insights from data generated in clinical research, which results in efficient clinical data management. A major challenge pertaining to the clinical research industry today is its inability to integrate big data generated from diverse, siloed sources with speed and volume. In addition, there are a considerable number of roadblocks when it comes to the quality of data and access to clinical trials, resulting in severe delays throughout the drug development lifecycle. Technology has proven to be a key catalyst in addressing these challenges. Cloud computing Cloud computing provides a scalable and

elastic platform with robust security at a reduced cost for running clinical trials in compliance with ICH-GCP guidelines and 21 CFR Part 11 compliance. It provides unique features including: 1. Audit trail: Centralizing data timely in the cloud facility leading to quick action with robust audit and ensuring   compliance with the regulatory requirements. 2. Centralized data storage: Saving time with centralized cloud management for clinical data with complex logistics such as data cleaning, data engineering, and regulatory submissions. 3. Data security: Providing secure data protection by meeting the regulatory requirements. Blockchain Blockchain can improve clinical data quality and patient safety at a reduced cost by enabling automation, data integrity, availability, traceability, and reporting. Blockchain is effectively used in electronic trial master file (eTMF) clinical document management where processes like document creation, review, approval, archival are chain events. Artificial intelligence AI helps in improving clinical data management processes by detecting trends, identifying risks, and predicting outcomes. It helps sponsors to understand the effectiveness of drugs, predict the success of a clinical trial, and enhance subject identification and enrollment. Al also enables standardization of clinical data which is subsequently used in analysis and reporting. Listed below are some AI-mapped technologies that can facilitate efficient management of clinical data. 1. Machine learning ML is applied in several complex clinical trials for clinical data reconciliation and mapping with respect to the Clinical Data Interchange Standards Consortium (CDISC) standards, thereby, expediting the clinical trial study onboarding process and enabling effective utilization of resources and time. For instance, in medical coding, a significant portion of terminologies can be auto-coded using ML-based algorithms. · Automation-based reconciliation There are several tasks like designing an electronic case report form (eCRF) and edit checks in clinical data management that are manual, repetitive, and resource-intensive. External data sources like non-eCRF data can be integrated with the electronic data capture (EDC) data, and the non-conformant and reconciliation programs provide all discrepant records which can be managed via the system itself. · Data analysis Analysis of data stored in the clinical database is a cumbersome activity. ML technologies allow the identification of hidden patterns and trends with ease, and facilitate the extraction of patterns and correlations from data in a meaningful way thereby supporting proactive analysis, cleaning, and reporting of clinical data. · Signal detection Risk-benefit analysis is critical to every clinical trial. ML allows the detection of signals from clinical research data to avoid or highlight potential risks. Effective utilization of machine learning techniques helps in identifying and timely reporting of adverse events. 2. Managing clinical data through AI and big data The frequency and volume of data generated from a variety of sources like eCRF, external vendor data etc. are considerably high. A data lake architecture allows trial sponsors to efficiently process and manage clinical data produced in running clinical trials and real-world evidence (RWE). Integration of non-eCRF data with eCRF data results in high velocity, variety, and variability. AI and big data can together enable stakeholders to make efficient decisions. 3. Natural language processing NLP helps build clinical data collection models in many languages. It extracts insights from unstructured data like images, scans, patient's medical records etc. Selection of trial participants can be done by simply scanning the

pathological reports of patients. In RWE studies, the analysis of sentiments and prescribing patterns for the medicine can be effectively done by NLP techniques. Conclusion The availability of innovative data visualization techniques has been instrumental in transforming the clinical data management process. Effective utilization of data visualization tools can transform big data into useful insights to discover meaningful clinical patterns and trends, and drive smarter decisions in real-time. The next-generation data management technologies enable corresponding sponsors to ingest, aggregate, standardize, and provide secure data access to all stakeholders throughout the clinical organization with cloud-enabled, secured access. Easy, accurate, and quick access to the data provides the organizations with a complete freedom to focus on high-value tasks such as analyzing clinical and operational data to monitor risk and visualize outliers and trends, thereby bringing drugs faster to patients. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Key Healthcare Trends For 2022

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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. Blog Smriti Kirubanandan Stuart Gilchrist You have these already downloaded We have sent you a copy of the report to your email again. Boston HLTH is a leading platform that brings together the entire healthcare ecosystem with a focus on innovation and transformation. The event was designed to elicit a broad range of themes and ideas that are reshaping the healthcare industry. TCS' Healthcare business strategists and public health experts share their firsthand experiences, key observations, and echoes from the session. The COVID-19 pandemic has brought about a myriad of changes in global healthcare. Traditional healthcare is evolving at an accelerated pace with the need to pivot and start looking at the overall health of a patient. Having a strong health and wellness infrastructure is a priority and physical and mental healthcare needs must be addressed collectively. This understanding has given rise to more holistic digital healthcare ecosystems. Value-based and long-term care While value-based care holds significant importance in every healthcare system, it is more important to offer longitudinal care. Viewing a patient's quality of care in the long term and making it accessible, affordable, and sustainable is necessary to make a long-lasting impact. Managing medical data exchange Transparency and data sharing create the new secret sauce. Being transparent about care delivery and costs and sharing critical patient information to proactively act upon are critical to reduce healthcare costs. If we can pick our pizza toppings and track its movement from the time of creation to delivery, why can we not apply the same to our healthcare services? Improving access to healthcare The convergence and simplification of technology and healthcare reduce the digital divide and increase understanding and engagement. In other words, an increased emphasis on interoperability and digital connectedness is key to growth and transformation. Omnichannel care delivery can play an integral role in improving access to healthcare. Pharma retailers such as Walmart and CVS are focused on making healthcare accessible and affordable, by making it one of their primary focal points. Additionally, modernizing Medicare and Medicaid services will enable access to modern technologies and innovative healthcare solutions. Technology and policy changes must match each other's speed. Hyper-personalized digital health experience To reduce healthcare costs, it would help to meet patients where they are and keep them out of hospitals. This encourages us to have a system that is preventative and affordable, for instance, Uber Health partners with Papa to address isolation amongst seniors. Data liquidity is the new flow, and digital transformation in healthcare companies must contain a strategy that focuses on enabling data liquidity to ensure a seamless flow of data throughout the health and wellness ecosystem from all sources and facilitates hyper-personalized digital experiences. End-to-end tele healthcare Breaking away from traditional healthcare delivery, tele healthcare allows for remote monitoring and management of healthcare for patients. Research suggests, a whopping nine in 10 patients are unaware that they have a kidney disease.

Similarly, many diabetics and pre-diabetics remain undiagnosed for a considerable amount of time. An estimated 37 million Americans live with CKD and nearly 700,000 have ESRD. Treatment can be challenging and costly for both patients and payers. Despite the enormous cost, patient outcomes are poor. Nearly 55% of dialysis patients have died within the first year of treatment. Telehealth has been a gift to many, especially during the pandemic. By enabling healthcare workers to meet people where they are, it has improved accessibility and affordability, and built trust. Tools such as remote monitoring serves are making high quality healthcare available to patients at low costs, improving patient engagement. Demand for better mental healthcare The increased understanding of the link between mental and physical health is creating a potential breakthrough impact in overall well-being and healthcare cost containment. The demand for behavioral health specialists as well as the tools, digital therapeutics, and other mechanisms for effective patient engagement is on the rise. The awareness around this linkage is resulting in significant investment and innovations that have the potential to appreciably improve overall health outcomes. Building a resilient, inclusive healthcare ecosystem We believe that as a society, we need to address the needs of our vulnerable communities. Public health is the sum of individual health, and we are only as strong as our weakest links. We can rise only by bringing up others in need. The healthcare industry is more aligned than ever in efforts to achieve improved health and wellness with an emphasis on changing care settings. The industry is rapidly converging within and across many industries. Health and wellness are driving the intersection and the need for a strong, expansive ecosystem that is inclusive of a strong infrastructure, transparency, data liquidity, collaboration, and leaders who are empathetic and focused on sustainable, high-quality execution. Fundamental shifts in population demographics, expansion of health data and predictive analytics, availability of sensors and remote monitoring devices, and increased data transparency and sharing have converged to enable needed collaboration and transformational change. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Explainable AI – A Necessity for Transparent and Trustable Intelligence in Banking

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groups or gender in credit card and loan approvals. There are concerns from regulatory bodies on the transparency of AI and the dire need to demystify the 'black box' nature of AI. The US Senate has introduced a bill, 'The Algorithmic Justice and Online Platform Transparency Act,' prohibiting AI algorithmic processes on online platforms that discriminate based on protected characteristics. As part of the bill, the Federal Trade Commission has established an interagency task force with representatives from the Consumer Financial Protection Bureau to examine the discriminatory use of personal information. Improving transparency in AI In the commercial lending business, banks use AI to proactively identify when their existing customers are thinking about business expansion or related business ventures and prequalify them for a loan. This offer deepens the customer relationship and keeps the customer from defecting to another bank for any additional lending needs. Banking personnel requires explanations from the AI system on how the specific decision was made and the influencing measures for every customer qualified for such an offer. An example of this would be a firm proactively working to reduce its carbon footprint by introducing sustainable practices into the business model or venturing into green business while improving the profit margin. Such firms shall have a better weightage for pre-approved loans. Firms with increasing debt year-on-year shall be declined for an incremental credit offer. Here, XAI can be applied to explain and justify the outcome produced, thereby improving transparency in AI decisions. Approaches to improve explainability in AI Banks can adopt XAI techniques that are model-agnostic to improve the explainability of AI systems. AI model simplification is based on rule extraction techniques. For instance, the local interpretable model-agnostic explanations (LIME) technique builds locally linear models around the predictions of an opaque model to explain it. This technique will be able to answer the most common questions: why was a customer selected for the loan offer, or which features caused the offer qualification? The bank can also use the SHapley Additive exPlanations (SHAP) technique to rank or measure the influence or the importance of features like credit history, revenue growth, and profit margin in the prediction output. Let us consider the approach for providing explanations at the global, local, and feature-interaction levels. At the global level, XAI will help answer how the data is contributing to decisions. It can measure the influence of critical features like credit history, total turnover, profit margin, type of industry, total debt, and loan amount and rank the order of feature importance on the decision. XAI can facilitate a better understanding of the prediction for an individual customer and answer the question of why the AI system disqualified a second loan for a particular existing customer. Poor credit history or poor business performance could be a major influencing factor. XAI can even compare the decisions taken on two customers with almost the same feature values, such as total turnover and credit history, and explain why the AI system disqualified the loan for one customer but not the other. At the feature-interaction and distribution level, XAI can explain how the model output varies with changes in the total turnover when the other attributes remain constant. This can explain the difference in loan offer decisions for two similar customers. Final thoughts With explainability being critical for all stakeholders, XAI adoption will accelerate in the coming years. AI algorithms, especially deep learning approaches, will see a drastic uptake by the banking industry if only XAI comes to the rescue with explainability

techniques. This will address the concerns of banks and regulators that are expecting transparency and explainability to build trustable AI in banking. If used judiciously, the potential of AI is incredible and will help remove the historic data bias and democratize access to financial services. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 the T-factor is the FP&A Pivot for Financial Services

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have these already downloaded We have sent you a copy of the report to your email again. Over the past two years, the financial planning and analysis (FP&A) function has reinforced its reputation as the 'fog lights' of organizations. With a deep understanding of organizational policies and actions in the current and future contexts, FP&A teams have helped navigate uncertain business situations to drive better results. The next era of FP&A will require a rethinking of skillsets as the need for advanced analytics, machine learning, and scenario modelling accelerates. These requirements are particularly critical for banking and financial services (BFS) firms. From macroeconomic headwinds to changing customer behaviors and the entry of fintech and regtechs in their traditional protected markets, BFS firms have faced a host of challenges in the past few years. The dearth of modern skills could compromise the ability to respond to these challenges and return to the growth track. Many BFS organizations are already evaluating skillsets in preparation for evolving requirements. TCS Global Financial Leadership Study revealed that 41% respondents in BFS organizations ranked investing in team skillsets as a top focus area to develop FP&A activities. As BFS firms prepare to acquire the requisite modern FP&A skillsets to ensure success, a closer look at a unique set of cross-skills— the 'T-factor' — is essential for optimizing skills investments. A T-shaped edge Individuals with T-shaped skillsets have long been considered particularly valuable across multiple sectors. A set of core expertise combined with broad skillsets can help increase preparedness for a rapidly evolving world, particularly with the adoption of digital technologies. The ideal T-shaped FP&A teams blend in core FP&A skills such as planning, forecasting, and accounting, along with a wider ability to apply advanced AI and machine learning technologies, risk assessment and scenario modelling skills (see Figure 1). An infographic illustrating the skills required in FP&A teams for banks and financial institutions. Teams require broad skills such as risk assessment, advanced analytics, machine learning, and scenario modelling. They also need deep skills such as planning, forecasting, and budgeting, which are related to core FP&A functions. TCS' Global Financial Leadership Study provides a useful snapshot of current BFS capabilities for both core and advanced FP&A capabilities and skills, as well as perceived gaps. The study surveyed 750 CFOs and senior finance leaders from across the globe, with annual revenue of at least $5 billion, to discover how they are transforming financial planning and analysis processes for high-change environments. Banking and financial organizations represented around 75 (10%) of the total respondents across 14 sectors. Overall, results from survey respondents in BFS organizations trended above average when compared to total respondents. For example, 60% of BFS respondents said they can rapidly create multiple, detailed what-if scenarios based on different internal and external models, compared to just 48% of total respondents. Similarly, 55% said the same for their ability to deliver short-term forecasts as against 50% of total respondents. When it comes to advanced FP&A technologies, BFS organizations are further ahead—61% of BFS organizations said they have the ability to use advanced FP&A technologies such as AI and machine learning to a full or significant extent, while only 44% of total organizations surveyed reported the same. An infographic depicting the results of TCS' Global Financial Leadership study related to FP&A. The study shows that 60% of BFS respondents can rapidly create multiple, detailed what-if scenarios based on different internal and

external models, compared to just 48% of total respondents. Further, 61% of BFS organizations have the ability to use advanced FP&A technologies such as AI and machine learning to a full or significant extent, while only 44% of total organizations surveyed have the ability. Potential paths for growth On the other hand, some areas require stronger focus. For example, 49% of BFS respondents reported the ability to perform advanced data analysis to a full extent—slightly below the total average of 52%. And while 54% of total respondents report they possess the right structure or practices to achieve digital maturity in their finance function, just 51% of BFS respondents. Scenario modelling, which is expected to play an increasingly larger role in the finance function, is in the early stages of maturity for both the total respondents and BFS firms alike. Just 44% of total respondents and 43% of BFS respondents report that they have these capabilities to a full or significant extent. When it comes to risk and control, 71% of survey respondents say they can consistently identify sources of risk without significant errors. At 68%, BFS respondents are still firmly in the majority, but are nevertheless slightly lower in an area so critical to organizational resilience. This slight shortcoming becomes more worrisome when it comes to overall risk assessment capabilities—only 43% of BFS organizations report having them to a significant or full extent compared to 54% of total respondents (see Figure 3). Needless to state, this is a matter of major concern. An infographic depicting the risk assessment scores of banking and financial institutions according to TCS' Global Financial Leadership study. Only 43% of BFS organizations report having risk assessment capabilities to a significant or full extent, compared to 54% of total respondents. Ready for the next era of FP&A New technologies, particularly in analytics and scenario modelling, will help FP&A teams prepare for the increasingly complex demands placed on them. But investments in their skills base, whether internally or via arrangements such as shared services, can help ensure their position as a growth partner and a strategic partner to the rest of their organization. Viewing skillsets through a T-factor perspective can bring valuable guidance to layer existing core skills with the breadth and depth of advanced skils. Discover more practical insights from the TCS Global Financial Leadership Study: The Next Era in FP&A Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Technology Imperatives for CROs to Fast-track Decentralized Clinical Trials

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administered at a local site. During decentralized clinical trials, the subject (patient) receives medicine at a local site, and the patient's body vitals are monitored and recorded using remote or wearable devices. While not all studies can be done completely virtually, a good number of studies can be conducted at hybrid and decentralized locations. A decentralized clinical trial is an unconventional method that depends primarily on the effectiveness of its technology. The CROs must focus on building a solid technology foundation. A secure and modernized technology platform providing interoperability in information exchange is necessary to maximize the potential of DCT. A schematic representing the decentralised clinical trial (DCT) ecosystem and its technology enablers. A typical DCT is comprised of a CRO at its core, a patient, the patient's wearables, a local site, a government authority, and a sponsor. The DCT is driven by a strong foundation of technology. Hence, its technology enablers include, information security and cyber defense, advanced analytics and ML, an advanced core, adaptive and scalable enterprise architecture, agile development, and a seamless integration and information exchange. Figure 1: Schematic representation of the DCT ecosystem and technology enablers Building for future – A scalable, adaptive, and agile enterprise architecture Connected devices, electronic data capture, and massive data crunching are the realities of CROs. Alternatively, CROs are also known as data companies. An enormous speed at which data will be generated by the connected devices needs local data storage and computing capabilities. The enterprise architecture for these organizations thus needs to be adaptive and scalable to all such future requirements and trends. Edge computing enables advanced and real-time data analytics. DCTs require organizations to work with several local labs and sites. These labs and sites can be on different kinds of IT infrastructure. Organizations need to invest in creating an agile enterprise architecture to cater to these needs. Some important considerations for technology and business architecture are listed below: 'Zero-trust' cyber security Federal authorities in most of the countries have strict regulations on patients' healthcare data and its governance. Thus, CROs carry the huge burden of data security. As the organization's enterprise architecture is designed for more scalability, it brings an intrinsic challenge of handling more vulnerabilities. A dedicated and diverse group of security experts must prepare a 'secure by design' policy for the organization. An integrated and comprehensive approach for securing the organization data is extremely necessary. Accomplishing desired results The model of decentralized clinical trials is dependent on a strong technology foundation. These trials are patient-centric and inclusive and bring diversification in testing. DCTs help reduce time in bringing new medicines and drugs to the market. A thoughtful application of technology can support in driving desired results. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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

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The New World of Life Sciences

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sciences industry such as customer experience, research and development, manufacturing, and supply chain: Customer experience: Life sciences companies are focusing on reducing the patient burden and the treatment threshold with the help of advanced technology. By bringing a seamless integration right from the clinical bench to the point of care (POC), and providing care at home, companies intend to improve the patient experience, in areas like therapeutic compliance and efficacy through home-based monitoring and administration of drugs at POC. This data helps with insights that will enable positive interventions in the quality of life of patients. Drug discovery: Bringing a new drug to the market is a lot faster now – no longer does it take 10 to 15 years. By and large, we are witnessing three important tracks of research in biopharma: Devices and diagnostics: Organizations are moving away from the word 'patient' by attempting to detect the disease even before the symptoms arise. Care and diagnostics are moving closer to the customer. Pharma companies are focused on improving therapeutic efficacy by collaborating with medical device companies and constantly innovating for a targeted drug delivery system. All the diagnostic companies today are focusing on self-diagnostics to detect diseases and syndromes well in time. Another example is the rising digital adoption in the field of surgery. Robot-assisted surgery and minimally invasive surgery are improving the quality of life with better implants. Manufacturing and supply chain: We believe the future of manufacturing is Neural Manufacturing™— where supply chains are adaptive, resilient, and scalable, and manufacturing processes are modular and highly customizable. Ecosystems comprising manufacturers, pharma companies, suppliers, and logistics service and public health providers are gaining prominence. A recent example of ecosystem play has been the COVID-19 vaccine management that boasts of several innovations such as cold supply chains, and dry ice innovations. Enabling personalized medicine in life sciences: A new realm of possibility The pace of innovation in life sciences is certainly going to accelerate. We will see a wider evaluation and adoption of IoT, RFID, 5G, quantum computing, digital twins, blockchain, AI, ML, cloud, among many other technologies. Most importantly, data, AI, and ML will play a pivotal role in personalizing medicine and driving commercial success, while a consortium approach will be important to share data for research. There will be more focus to go from probabilistic to deterministic decision-making to improve efficiency of AI systems. We will also see the emergence of the micro supply chain soon. Drone-based medicine delivery also shows great promise. These are finite, decentralized, agile 'mini-operating models', with flexible supplier contracts and relationships with manufacturing closer to the point of purchase. The future indeed looks exciting where the consumer demands personalization. This provides ample scope for reimagining the life sciences value chain, and cross-industry collaboration. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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

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Patient Access – Strong Foundation Leads to a Stronger Revenue Cycle

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patients and providers to the health system, such as IoT, email, and mobile applications among others. This improves interaction and allows patients to easily find and access the care they need. Such technology allows the health system to personalize communication between the patients and care givers, and seamlessly integrates registrations, appointments, cancellations, and rescheduling. Transforming scheduling and simplifying referrals One aspect that can assist and improve healthcare outcomes is appointment reminder services. This will reduce no-shows and last-minute cancellations. Automated reminders on upcoming appointments or pending payments keep patients updated and help providers focus on patients' health. In addition, the referral process must be made easy for both physicians and patients. One approach is to establish processes that proactively help patients make referral appointments, engage with them to answer questions, and make sure that they follow pre-procedure instructions. Key steps in the referral process—like prior authorization of services—should be examined for potential automation to drive efficiency and reduce burdens on providers and patients alike. Offering patient-centered care Patient-centricity—a key focus of the healthcare industry—needs to be a pivotal component of the patient access solution. With the technology that delivers focused information at the right time, patients can plan their visits at their convenience. Delivering key insights Data analytics can help identify opportunities for improvement, offer visibility into the eligibility and registration processes, and support root cause analysis to drive corrective action. With analytics, providers can improve their point-of-service collections and reduce eligibility or authorization denials by 25%–30%. This lays a strong foundation for increased efficiency and success of the downstream revenue cycle process. Optimizing the revenue cycle performance Integrating the patient access operations can optimize resources, enhance patient care, and increase revenues. To achieve this, it is necessary to: Using technology to enhance patient experience Patients are enthusiastic about new technology, including automated digital communication. Reassessing and syncing traditional patient experience models with technology enables creation of a care continuum; one that engages and personalizes every touchpoint of the patient's journey. Artificial intelligence (AI)-powered chatbots offer patients ease and convenience. Access to personalized care is now possible. These user-friendly chatbots track and guide the patients based on the conversation. Health systems and care providers must leverage chatbots for patient engagement and customer service. The combination of patient-first approach and the right technology solutions can create a seamless experience for patients and providers. An effective patient access service improves patient satisfaction and ensures an efficient revenue cycle. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Regulating AI to Protect Insurance Customers

Artificial intelligence (AI) has become all-pervasive and an integral part of our lives that it is hard to imagine any new product or service that does not feature AI. Insurance is no different. Today, AI is increasingly used to identify prospective customers, assess risk, determine premiums, and improve claim experience. However, the usage of AI can have adverse effects if it exhibits bias or is misused. Therefore, insurers should be aware of the numerous legal and ethical problems they might face as a result. Risk and Compliance Implications of AI A model's outcome is determined by the variables used, training data, and the extent of testing performed during its development. The risks can be broadly classified into: Training risks: If the models are not trained comprehensively, their decisions could be biased and impact a select few based on protected attributes. As a result, the model could either reject claims or charge higher premiums incorrectly. Security risks: Computer vision algorithms that assess claim damage, text classifiers that detect fraud in documents, and speech recognition systems in contact centers can be

compromised if testing is not adequate. Data privacy risks: Using personally identifiable information (PII) or sensitive attributes of customer data without consent violates data privacy laws. Similarly, facial recognition systems are considered a threat to individual privacy and a violation of fundamental rights. These risks can be a legal nightmare and raise various questions about the usage of AI by insurers. Regulation and guidelines on AI usage While only a few AI applications have been regulated, most remain unregulated and are only driven by guidelines. The regulations also vary from one region to another. Data related: AI-relevant data privacy has the highest number of laws. The EU's GDPR (2018), The California Consumer Privacy Act (2020), The Personal Information Protection Law (2020) in China, the Personal Data Protection Act (2020) in Singapore, and The Digital Charter Implementation Act (2020) of Canada are few of the regulations that protect the privacy and personal data of citizens and consumers. Algorithm related: Although there has been a lot of hue and cry on addressing AI bias, most countries only have draft regulation proposals. In the US, the Algorithmic Accountability Act drafted in 2019 never passed the senate, while the Algorithmic Justice and Online Platform Transparency Act (May 2021) is still awaiting approval. The upcoming AI Bill of Rights aims to protect consumers and give them a right to transparency and explainability. The bill also aims at making AI-enabled systems more accountable. Unlike the Federal government, many states in the US have enacted AI laws. California's Automated Decision Systems Accountability Act and Illinois's Artificial Intelligence Video Interview Act, to name a few. Industry bodies such as The National Association of Insurance Commissioners (NAIC) and the Federal Trade Commission released guidelines in August 2020 and April 2021, respectively, aiming for transparency, fairness, equity, accountability, and security in the use of AI by organizations. Application related: The European Union's (EU) Artificial Intelligence Act (April 2021) is a comprehensive proposal that prohibits the use of AI for social scoring, facial recognition, manipulation, and dark patterns. The act mandates high-risk AI to conform to the EU standards for health and safety requirements. It also demands transparency and a code of conduct for low-risk categories. In August 2021, the Cybersecurity Administration of China drafted more stringent regulations for the use of recommender systems. It exercises control over the innate workings of the model, mandates approval prior to usage, limits the usage to promote positive energy, and prohibits the spread of undesirable content. In November 2021, all 193 members of UNESCO adopted a historic agreement on the ethics and usage of AI to promote human rights and address major global challenges. Impact of AI regulation on the insurance industry Due to increased regulation, we can expect a few changes in the insurance industry. Carriers will need consent to create risk profiles of consumers based on protected attributes and disclose customer interactions and business processes leveraging AI to ensure transparency. Additionally, insurers' AI models may be audited frequently and certified as compliant with algorithmic accountability and security. Carriers would expect the same from their AI technology service providers. What needs to be addressed is the cost viability of implementing these regulations and their impact on the combined ratios of carriers. If AI usage turns out to be more expensive and comes with legal hassles, it may deter AI adoption among insurers. Another challenge for insurers is compliance with multiple AI regulations across regions. Hence, an all-encompassing, global regulatory

framework would facilitate the adoption of AI in the insurance industry. Regulation – An advocate of AI adoption in insurance AI can undoubtedly make insurance better, but its usage can sometimes result in undesirable outcomes that are detrimental to insurers. Regulation on AI usage will bring in accountability and prevent misuse, which will, in turn, eliminate legal hurdles and build consumer confidence. Insurers should not consider this a deterrent to AI adoption because the same regulation mandated AI usage in road safety and healthcare. AI evolution is still at a nascent stage in the insurance industry, and the time is ideal for fostering its growth for the greater good of society and humanity. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Sustainable Pricing Power: Marketer's Winning Gambit

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insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all walks of life. Get access to a catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. Blog Chris Burggraeve Ranganathan Sundaram You have these already downloaded We have sent you a copy of the report to your email again. Ignorance is not bliss. Academic research shows that barely 10% of CEOs are selected from marketing's ranks and, even in top CPG companies, less than 20% of CEOs rise from marketing. Worse, less than 3% of a company's board roles are filled by people with a marketing background. So much for the voice of the consumer being represented at the highest strategic body of a company. Over the last few decades, marketers have ignored three of the original four Ps of Kotler's marketing mix, focusing on promotion alone. Product tends to be led by research and development or by engineering and place by sales. And most dramatic of all - pricing by sales and finance. Not having a seat at the table of pricing is a highly critical issue for marketers in today's acute times of inflation. With spiraling costs and supply constraints, pricing power, or the lack thereof, determines the profitability future of the company. Inflation is really a marketing excellence acid test. The existential financial philosophy guiding marketers is to create brands with Sustainable Pricing Power. The CMO needs to think more like a CFO and CEO, and like an external investor, ensure the company's pricing decisions reflect the true relative strength of the brand. The traditional why of marketing – as defined by marketers – is all about solving existing or unmet consumer needs and wants and to drive demand. While correct, this definition has always remained a black box for finance, resulting in endless discussions on budgets and ROI. If we define success as the ability to build sustainable pricing power, marketing and finance can connect in a way all can see and feel. It is marketing effort outcome-centric and linked to profit and loss. For Warren Buffet, pricing power is the single most important factor that drives investment decisions. He defines it as the ability of a brand to systematically raise its prices without curtailing demand or losing share to a competitor. An illustration showing how companies can leverage their brand strength to reduce the gap between what the company is willing to charge for a product against what the customer is willing to pay. The lower the gap, the higher is the profit for the company, especially if finance can manage to increase the gap between what a supplier is expecting to get paid versus what a company pays to its suppliers. best marketing-driven companies invest in the creation of long-term (in)tangible brand assets and emotional bonds in the minds of customers to create willingness to pay (WTP), and then find effective and efficient ways to monetize these assets in the short term. The closer the company can bring their real net pricing to the WTP, the lower the consumer surplus, and higher the possible margin for the company.   For Wall Street, a brand's real earning potential is based on the net present value (NPV) of its future cash flows, potentially supplemented with a terminal value in case of a transaction. The more a brand can demonstrate sustainable pricing power underpinning these cash flows, the stronger it will be perceived. Importantly, pricing power not only impacts the topline but also dramatically affects a company's margin potential by lowering costs. For example, banks will offer debt at lower interest rates, investors will buy shares at higher prices and lower cost of

equity, and regulation compliance (like insurance) may be cheaper for stronger companies. Some do it better than the others Netflix and Disney have demonstrated pricing power consistently by increasing prices while growing the subscriber base. This illustration from the Capital Group shows how certain industries possess greater potential for pricing power. An image that maps various industries across two dimensions and demonstrates their relative performance across average gross margin percentages plotted on the Y axis and standard deviation of gross margin percentages mapped on the X axis. The industries considered in this comparison are pharma/biotech, household products, beverages, semiconductors, media, apparel and luxury, tobacco, software, hardware, telecom, materials, groceries, healthcare services, automobiles, aerospace and defense, transportation and energy. Pharma/biotech ranks highest for average gross margin and low on standard deviation of gross margin among all the industries closely followed by household products, beverages, semiconductors, apparel and luxury and media. Learn from online gamers - measure outcomes risk free Pricing dynamics are quantitatively trackable. They measure the outcome of all the hard work a company puts in the creation and delivery of its goods and services. Pricing does not measure marketing inputs (TV advertisements, social media campaigns) or outputs (TV gross rating points, clicks, impressions). Billions of impressions only matter if they translate into monetization. Pricing power is where rubber meets the road, for marketers and for the entire company. To note, pricing power needs to be sustainable. Research has amply demonstrated that the best companies add value to all stakeholders in society, not just to shareholders. A good proxy for this today is Environmental, Social, and Governance (ESG) ratings. Technology is knocking on every door and marketing can focus on the 'who' and the 'what' by leveraging digital technologies. It is now possible to create virtual models of customers, products, processes, resources, and eventually a metaverse of sorts with digital twins as the building blocks. Marketers can create different self-learning simulation models by combining real-time and historical data to help predict best possible product bundles and pricing. This ability to understand the market impact is key to building sustainable pricing models without risking material loss in the physical world, and to reduce investors buyer's remorse. So, if you are a marketer, ask yourself: how good is my company in building sustainable pricing power? Am I sitting at the right table? The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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ESG Integration into Credit Assessments

Banking and financial institutions' instrumental role in allocating capital makes them a key influencer of sustainable and environmental, social, and governance (ESG) outcomes. These institutions hold a unique position to fund, bring awareness, and incentivize the transition to sustainable practices. The focus on sustainable outcomes can be traced to financial institutions' net-zero commitments in the wake of global warming and the Paris agreement on climate change. It is now imperative to go beyond measuring performance and expand to an ESG target-setting model. This has to be done jointly with the business partners by devising a joint action plan and continuously monitoring it over fruition. Systematic credit assessment Sustainable impacts, whether positive or negative, take a long time to manifest after the completion of business cycles, regardless of the type of financial transaction – be it lending, investment, or underwriting. Traditional credit assessments include the 'governance' pillar of ESG as a part of the due diligence process. But for long-term value creation, ESG-integrated measurement must be woven into

the credit analysis process beyond the current advisory or view mode in terms of decision making. It requires a clear understanding of how ESG should be integrated into both equity analysis and fixed-income analysis. There is incongruence in the ESG-integrated creditworthiness approach amongst borrowers, lenders, investors, CRAs, portfolio managers, and ESG analysts. This inconsistency stems from the considerations of time horizon and the materiality of these factors at the sector, company, transaction, or project levels. With ESG evolving as a deciding factor in investments and financing, there must be a proactive way of raising the bar as an enabling ecosystem, wherein all the partners and associated stakeholders demonstrate their ESG performance metrics and work towards the same. A systematic and transparent integration might, over time, provide feedback to the policy and guidance units for framing financing strategies, in addition to processing business transactions. Materiality matters At the outset, understanding ESG issues at various levels of the transaction or project under question is crucial. When assessing the materiality of credit risk factors, governance comes to the fore as a material factor for all organizations. Besides, the materiality of social and environmental risks varies for borrowers, depending on their operating sectors, location, diversification, and more. As a result, ESG issues can be classified at three levels – general, sector, and borrower – followed by an assessment of materiality to ascertain ESG relevance. For instance, a bridge construction project might consider environmental factors in terms of flood in the region, displacement of people in the area, and the financial prudence of the borrower in the use of funds. The materiality assessment must be merged into the overall credit assessment process with other credit ratings gleaned from either a third party or internal evaluations, or both. Lead and lag indicators Current ESG assessments mostly consider lag indicators that signify past performance. A more proactive approach will be to give credence to the efforts taken to improve ESG, predominantly, the lead indicators. In the above project example, the lead indicators could be the borrower's rehabilitation plans for the displaced, people engagement, and afforestation measures. These indicators will predict a current 'red' turning 'green' or vice versa. The borrowers should self-evaluate these indicators, in addition to a third-party assessment. ESG-embedded process Financial institutions can adopt a balanced approach to integrate ESG considerations into their credit assessment process. The tight integration need not necessarily be a combined score but separate scores, coupled with a curve fitting for ESG dimensions depicting the tolerance. This approach, in and of itself, will give the ESG factors the status they deserve in credit assessments and in taking 'make or break' decisions. An unmitigated ESG risk might result in financial losses and reputation damage. Here, it is necessary to reaffirm that certain sectors, countries, companies, and projects are not prohibited from investing, and that portfolio returns cannot be at the expense of ESG impacts. The question is: how can this be done during an evaluation? Any evaluation of this kind is identified through red, green, or amber indicators. Here, red means a clear no-go, and green means a clear go. But how can amber be dealt with? By introducing condition precedents, covenants, and memoirs on ESG in terms of efforts and performance before approval and further linking tranches to these. Introducing waivers, concessions, and penalties to make the funding remunerative or punitive on ESG performance or efforts will also help the cause. More importantly,

introducing a joint ESG action plan to improve the borrower's performance and reduce the risk of the lender, along with continuous monitoring over time, will be beneficial in achieving the desired impact. The action plan powered by ESG-integrated credit assessment can dovetail responsibilities on either side and raise the bar on ESG performance in the entire ecosystem. Improved ESG performance across the financial ecosystem would deliver more authenticated ESG commitments rather than mythical ESG targets that lack substance and leads to greenwashing. In the times to come, the relative roles of all ecosystem players will evolve with more structured responsibilities. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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 =====================

Cryptocurrency Making its Way into Mortgages?

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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. Blog Gurpreet Singh You have these already downloaded We have sent you a copy of the report to your email again. Who would have ever thought that a collection of binary data stored in a ledger using cryptography can be used to make monthly mortgage payments? Cryptocurrency made its ingress in the US mortgage industry when the second-largest mortgage lender in the country accepted the first mortgage payment in cryptocurrency. This was a pilot run to look into the incremental and regulatory uncertainty in the cryptocurrency space. While the experiment was on mortgage payments, there could be other areas where cryptocurrency can be a game-changer. Is cryptocurrency a liquid asset? Technically, cryptocurrency is a liquid asset that can be converted into cash. However, whether it can be listed as a liquid asset for a down payment, closing cost, and reserves requirement while filling mortgage applications is a million-dollar question. (It could be a million-bitcoin question in the future.) Till now, lenders have only been accepting typical liquid assets like cash at banks, individual retirement accounts (IRA), and money market funds to underwrite a mortgage application. The way we see it, lenders may start viewing cryptocurrency holdings like stocks, but it would only be a certain percentage of their market value. How about down payments? Borrowers can cash out their cryptocurrency holdings for down payment requirements, but that attracts major tax liabilities. Even if a lender accepts it, there are certain pre-requisites to get the fund transferred to the US account prior to the loan application with a clear paper trail. Exploring cryptocurrency options for mortgage payments The conventional way of mortgage payments has been through online banking, electronic checks, paper checks, escrow accounts, and standing instructions for auto debits. When it comes to cryptocurrency, it is stored in an electronic wallet that has a secret pin to send and receive payments. To make cryptocurrency payments mainstream, technological advancement in the fintech space is required for creating a platform that can bring escrow accounts, mortgage accounts, and cryptocurrency wallets under one roof. We envision an amalgamated platform for money movement that can convert blockchain-based cryptocurrency into digital money, which can be transferred to escrow accounts for mortgage payments. Cryptocurrency as reserves Cryptocurrency's volatility makes it the most speculative asset that one can hold. Ten thousand dollars' worth of cryptocurrency may have a value of USD100,000 next year, or it could be USD1,000. Typically, a mortgage is taken for 20–30 years, with an average of 2.5 years of holding before refinancing. A lender must consider the risk of accepting cryptocurrency value as on date to secure future mortgage payments. Volatility and attached tax liability With a history of over 11 years, cryptocurrency's market value fluctuates every day and is entirely driven by demand and supply. Unlike any other currency, it is not officially backed by any government. Also, since it is not reinforced by any collateral or promissory note, there is no strong metric to calculate its absolute value, and it is solely traded on the price that one is willing to either buy, sell, or both. Capital gain tax is another element that makes cryptocurrency less appealing. This tax ranges between 0–20%. If one wishes to cash out

cryptocurrency to make a monthly mortgage payment, it will attract tax liability on the increased value from the time of original purchase. Cryptocurrency—A future bubble or revolution? A USD2 trillion cryptocurrency economy is impossible to ignore. Buying and investing in cryptocurrency is becoming popular among millennials. A great number of digital mobile applications and trading platforms are coming forward to attract the youth and make trading simple, seamless, and secure. There are countries where cryptocurrency has crept into real estate for buying and selling properties, including cross-border transactions. Having said that, there is still a long way to go to shift the momentum in this space. A plethora of new platforms need to be designed and integrated for the smooth movement of money, especially between different markets. Further, taxes may evolve, with the Internal Revenue System (IRS) analyzing this new asset class. Overall, there is a paradigm shift in this space that reflects a continuous increase in the value of cryptocurrency, backed by mainstream adoption. Inevitably, a time will come when cryptocurrency will have a persuasive place with a more regulated framework in the financial world. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Reinvigorating Subrogation in Insurance Claims

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their efficiency for successful subrogation. The success of subrogation collection and optimization of recovery time can be achieved using models for subrogation identification, segmentation, and collection effectiveness. All these tools are being used early in the process. Artificial intelligence (AI) AI models are applied to identify subrogation opportunities throughout the claim lifecycle and flag cases. Machine learning (ML) models are used for intelligent triaging of a case by mapping to the right case to the right person at the right time, which will alleviate subrogation leakages to a great extent. Deep learning capabilities are being explored to derive insights from structured and unstructured data in claims notes, and historical data is being used to identify the recovery potential. Blockchain—Decentralizing data entry and storage The high promise of blockchain is being explored by insurers to create a collaboration platform with other insurers. Industry-level consortiums are being explored for deploying a blockchain-based solution in which the participating insurers can preserve the evidence and create an immutable single version of truth regarding the claim event. Smart contracts enabled by blockchain will automatically enforce the terms and conditions under a policy. Internet of things (IoT) — Enabling real-time data availability The paradigm of connected insurance manifests into several forms such as telematics, connected home, connected life, smart factories, and the like. These advanced technologies are reinventing the risk and claims landscape. The data from sensors and connected devices could be leveraged to reconstruct the claim event for investigation. In the future, digital twin technology will revolutionize the way in which the subject of insurance is continually monitored, and its digital twin is synthesized and stored. The inevitable tomorrow There is a conscious effort to shift the beginning of subrogation function from the current end-of-claims-settlement stage to start it alongside the first notice-of-loss. The engagement models among the insurers, customers, adjusters, and other stakeholders have been moderately reinvented using digitalization. Insurers will relook at the subrogation process, by taking into consideration the data extracted from new sources, and the intelligence it provides to automate the settlement of subrogation. Insurance carriers that look to outsource the subrogation process must consider the technology solutions offered by the vendors. Besides, they need to ensure that the data and insights gathered by their claims adjusters are properly transferred to the vendor. An efficient subrogation not only helps in improving the company's balance sheet but also impacts customer retention and experience by returning the deductible to the customer. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Claims Pattern Detection: The Future of Payment Integrity

Revenue leakages are a constant struggle for payers, as they progress through different stages of claims operation. In addition, there are issues around high rework rate, overpayments, and adjustments that contribute to spending effort and cost in administrative tasks. This has created the need to move away from the traditional 'pay and chase' approach and prevent incorrect payments, claim frauds, or even other larger issues that arise due to incorrect processing of claims. The financial burden incurred by payers for claim processing and reprocessing due to incorrectly processed claims, cascades down as additional workloads to downstream processes such as contact centers, collections, clinical investigators, and appeals. Healthcare payers spend around USD 40 billion in administrative costs for processing and reworking on incorrect claims, which includes USD 6-7 per claim to handle claim-related queries by their contact centers. While the focus is shifting to adopting prepayment initiatives and analytical solutions to handle these challenges proactively, payers need to ensure they are embracing the right

methodology. Minimizing Incorrect Claims Processing Claims data is an ocean of valuable insights used only for operational purposes so far. Enterprises are struggling to utilize this data effectively due to the fragmented data sources and siloed operations, which makes it difficult to get a holistic view of where the issues lie. It is humanly impossible to gain insights from the vast and complex claims data to find out the reasons for the spike in administrative cost. This is where techniques like pattern detection come in. Pattern detection techniques, powered by AI and ML, help analyze historical data to identify claim patterns, which have higher propensity of overpayments or chances of incorrect payments and much more. For example, a specific pattern of a primary diagnosis for osteoarthritis which, whenever billed with the procedure codes for knee arthroscopy and a specific modifier 59 performed by provider X always leads to an incorrect denial and thus lands as an appeal resulting in increased rework for a payer. Or, whenever an inpatient stay for a case of child delivery exceeds the length of stay of four days and is associated with normal delivery but diagnosis codes indicating complications has historically been identified as overpayments or frauds. Identifying such patterns and monitoring them in real time will help handle such exceptions. Moreover, the dynamic trending capability helps make even smarter decisions as the patterns evolve over a period and some become outdated. Continuous monitoring on trends thus helps detect new patterns that are to be added in the watchlist and dropping the patterns that may not be required to be tracked further. Such solutions that are backed by data, drive transformation for processes of concern by triggering either a bot, workflow creation, next level investigation, training needs analysis, etc. This not only improves the processing accuracy of claims but also reduces manual efforts of downstream processes, thereby enabling reduction in overpayments, late payment interests, call volumes, and rework. Adopting Analytics While investing in predictive analytics will allow payers to make the right decisions always, through better insights, its success also depends on adopting data mining solutions to bring the data together. The initial discovery of the dataset and bringing the right influencers in the dataset is equally important. Identifying the right set of attributes in the enormous dataset will also help ensure the success of the analytical model. Additionally, moving away from a reactive to a proactive approach by leveraging prepayment initiatives like claims pattern detection will not only help bring down costs and administrative efforts, but will also help increase member satisfaction. Predicting incorrect payment, reducing revenue leakages, and getting claims 'right the first time' is undoubtedly the way of the future for payers. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Keep a gameplan ready to win the talent war

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resulting in a sharp increase in the salary expectation of job seekers. Organizations are recruiting in large numbers and paying a premium, causing a significant pay inequality within the organizations. They need to control these outliers and ensure loyal and trusted employees are also proactively addressed with the right incentives to retain them. Organizations that invest in cross-skilling their employees are the most resilient to attrition as the risk posed by knowledge concentration in a few key individuals is systematically addressed. While this improves the motivation level of employees, a planned resource churn in the project also helps reduce the people-related uncertainty and creates new opportunities and an accelerated career movement for employees. Enterprises should have structured listening channels such as internal social platforms and formal surveys to feel the pulse of the employees, enabling pre-emptive and bold interventions. A significant portion of the reasons for quitting a job is not compensation-related; therefore, the HR department can address such issues through deeper employee connections and empathetic responses to grievances and concerns. Several large companies have flat grade-based compensation systems. While these offer ease of policy deployment, it gives limited ability to incentivize high-performing talent. However, digital technology can personalize compensation structures based on role, capability, and personal impact on the engagement. Organizations should build institutional frameworks around compensation personalization to reduce inconsistent actions. Most organizations work on an annual compensation revision process. While this time-tested process is still relevant, organizations should consider budgeting a salary refitment component within their project budget to carry out compensation revisions in a structured way for top talent and reduce inconsistent behavior. There are many external factors beyond the control of a company. However, resilient organizations should have a plan to deal with the talent war that the industry is witnessing. A layered approach to talent engagement with different levels of tolerance for attrition at various performance levels will enable organizations to channel their attention to retaining top talent. Each organization will need to discover its risk appetite to build mechanisms to deal with attrition, hiring and retention at different levels of their performance band. A comprehensive training plan to create multi-skilled, full-stack teams coupled with planned job rotation will help organizations mitigate people-related project risks and prepare the project teams to live with this new normal of people churn. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life Theme Font size Line height =====================

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more adaptable and resilient in a rapidly changing world. Thanks to years of building up valuable contextual knowledge of their business, TCS is uniquely positioned to help clients along every step of their transformation journey. To deliver on that promise for every client, TCS brings to the table the full breadth of its integrated IT, business optimization, and transformation capabilities The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 ======================

Helping students design digital hacks for global challenges

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winners of the past eight events well along the path of their product development cycle, Patil is currently working in the early stages of TCS Sustainathon Europe 2022. This time, the challenges will involve developing innovative approaches to the consequences of overconsumption and overexploitation. Themes include dealing with pharmaceutical waste, protecting the role of pollinators in nature, and addressing microplastic pollution. While solutions have to be digital, this does not restrict who can apply for the program. Students from any academic discipline are welcome, Patil points out. "We receive about as many applications from business students as those on STEM courses." "Crowdsourcing is very important to TCS. Real innovation doesn't happen in silos, and with COIN, we've established an innovation ecosystem that we can tap into when we face new customer challenges," explains Patil. "For the Sustainathon teams, we open up this ecosystem to coach them and help them move their ideas forward. But at the same time, we all get inspired by and learn from fresh approaches our Sustainathon participants bring to the table. It's the proverbial 'win-win' for everyone." This also applies to the competition's runners-up, says Patil: "All ideas are valid, but some may need more help to turn them into startup businesses. We invite the teams with the most promising approaches to future Sustainathons to continue their work." The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Theme Font size Line height =====================

Achieve tangible value with a metrics-driven cloud model

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4 MINS READ Yugal Joshi You have these already downloaded We have sent you a copy of the report to your email again. 67% of enterprises struggle to derive the intended value from their cloud adoption. That's a key finding from our research. And this is true across enterprises irrespective of whether they are just starting their journey of transforming their core, using cloud as an operating model to transform their business, or innovating with cloud for the future. While there are multiple reasons for this struggle, three are key: Cloud value and adoption objectives are not well defined. Assessment of realized cloud value is not metrics-based. Cloud journey is not periodically fine-tuned to extract the potential value. So, what do enterprises need to ensure cloud value? Adopt a metrics-driven cloud value evaluation model. Many enterprises start their cloud journey to improve operating costs and efficiencies. However, they soon realize that the true benefit of cloud adoption comes from a multi-pronged journey that spans cost, efficiencies, and sustainable business transformation. The cloud spectrum will impact areas such as applications, data, security, infrastructure, governance such as FinOps, and organization imperatives such as operating models, talent, and change management. To measure progress on cloud transformation, enterprises need to evaluate their cloud value realization, align with best practices in the market, and fine-tune their cloud adoption journey. They need to incorporate a 'dynamic value' paradigm where what cloud brings today will be different from tomorrow. For example, a hospitality enterprise began its cloud journey with the goal of reducing costs by over 30% and increasing operational efficiency. However, it achieved much more — scaling its cloud adoption to eventually drive business growth with 25% more releases and transform its business model through newer innovation ideas. There are two parts to the full cloud spectrum journey: strategy and solution. Cloud strategy: Should focus on the purpose of cloud adoption, value definition, governance, and the required organization model. It should encompass everything from data center exit to drive cost savings and agility, to modernization in the cloud for business growth and disruptive innovation for future success. Solution: Must bring the cloud strategy to life and will need industry-aligned value benchmarks that enterprises can use to compare themselves. It should assess their current performance, do a proactive intervention when plan and reality diverge, and build a journey for the future. Measure your progress on predefined values through various cloud stages. To begin with, the model should perform a comprehensive review of the enterprise's current cloud landscape. It should assess whether cloud adoption has met the earlier defined value or not. This as-is performance across a variety of technology, processes, and business segments will form the basis of value realization. The metrics and industry benchmarks should serve as a mirror of the

enterprise's cloud performance. They should take out the guesswork from cloud value realization and ensure enterprises achieve predefined values across various stages of the cloud life cycle. In areas where the enterprise lags its peers, it can proactively intervene, and course correct. In others where it leads, it can continue the best practices to sustain this advantage. The model should also help enterprises to define realistic value for future cloud adoption initiatives. Benchmarks should assist in course correction and make the journey fact-based and pragmatic. The metrics and benchmarks should be very detailed, covering the entire technology and process ecosystem. In addition to typical metrics such as mean time to resolve, percentage of successful changes, asset scanning, and automated CI/CD, it should have next-generation metrics around infrastructure-as-a-code adoption, cloud training depth, next-gen support model adoption (for instance, SRE/DevSecOps), talent models, and return on investments. The model should help enterprises adopt cloud across the organization. It should address multiple business and technology objectives such as debt reduction, cost optimization, higher efficiency, and business agility. These are achieved throughout the full cloud spectrum spanning migration, modernization, and data center exits. Fine-tune your cloud journey with recommendations from the cloud value model. Enterprises should also classify their value definition for different business objectives—whether it's cost optimization, operational efficiency, or business agility and transformation—and proactively build a newer business model. Force-fitting metrics and benchmarks without value definition will not succeed. Enterprises need to act on the recommendations of the model. They will have to prioritize areas of strategic importance where they are lagging. This is less about being 'green' on operating metrics and more about contextualizing what is relevant for the enterprise. Eventually, this value transformation and measurement will need change management across the organization. In summary, the metrics-driven cloud value realization model will help enterprises to: Assess whether they are getting the defined value from cloud adoption. Realize where they stand in extracting value from cloud initiatives versus their peers. Undertake proactive initiatives to fine-tune their cloud journey and realize the potential of cloud. As cloud becomes strategic for business transformation, enterprises will need to periodically recalibrate their value realization journey. It cannot be a one-and-done exercise, but it should also not overwhelm enterprises. Therefore, adopting a value realization model and fine-tuning the cloud journey with the recommendations of the model will be critical. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Theme Font size Line height =====================

Merchants meet customers

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shopping and checkout-less technology were appealing to shoppers. As per a consumer survey, 87% of shoppers preferred to shop in stores with touchless or robust self-checkout options during the pandemic. Self-checkout options remain popular, as nearly 75% of shoppers say they will continue using them to pay for groceries frequently. Retailers found increased sales and marketing, and affinity opportunities with customers by connecting cloud data with new, more flexible payment opportunities. Connecting financial institutions' payment data to merchant services increases loyalty, drives hyper-personalized offers, and opens opportunities for increased product adoption and card use. On the merchant side, it allows increased purchase incentives, marketing, and affinity engagement to build customer trust and repeat business. Social commerce will also be one of the most prominent digital trends in the retail industry, which paves the way for building more immersive experiences. This will be further accentuated by strides being made in livestream and virtual reality shopping and the increased adoption of the metaverse. Financial institutions must consider this and implement secure and seamless payment systems to enable a superior customer experience. Cashier-less technology has arrived For brick-and-mortar retail, checkout lines remain a significant point of friction. They are bringing seamless checkout experiences to consumers at scale. Solution: NFC payment via embedded chips, tokenized wallet, pre-pay, buy now pay later (BNPL) The distinction between offline and online has become irrelevant The digital infrastructure is set to thrive. Shoppers will prefer convenience, and retailers will expect better relationships with rich data generated by digital transactions. Solution: Omnichannel journeys, geotargeted relevant offers, and messaging hyper-personalization Installments will become more common Tightening household budgets—due to inflation and rising gas costs —and increased convenience have allowed pay-as-you-go, buy over time, and buy now, pay later options at the point of sale. This will be a game changer in making purchase decisions. Solution: Pay per use and buy now pay later (BNPL), multi-payment sources From subscription to recurring relationships Brands are creating deeper customer relationships and enduring revenue streams with recurring payments. Solution: Subscription sales models, personalized rewards, affinity offers, philanthropy, and cause Merchant services and payments merge into a shared ecosystem of opportunity When financial services providers connect merchant services to customers in the payment space, they open an opportunity to share payment data to help the retailer build loyalty while increasing the likelihood that customers will use their payment services and keep revenue within the bank. Leveraging platforms and APIs to create a seamless, integrated experience Rewards and loyalty, geotargeting of offers, and omnichannel messaging delivery are powerful influencers in driving response. Imagine a platform that combines this data across the entire bank ecosystem and shares it with merchants as an incentive to use merchant services. It would create opportunities for point of purchase (POP) credit acquisition, multiple payment options like buy now, pay later, discounts, and even opportunities to use digital services like e-statements and bill pay. These separate services usually are not connected to the retail experience. However, once consumers use and trust the technology, the opportunities for deeper relationships and brand loyalty are enormous. The way forward As we forge ahead with technology innovation as a solution to mitigate risk, we will see opportunities to create stronger relationships through a deeper understanding and use of data. Delivering

value across multiple ecosystems will increase the trust, loyalty, and adoption of a more connected ecosystem. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help Theme Font size Line height =======================

Connected & Intelligent Railroads - Cognitive Railroad Operations

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operations can proactively identify risks of assets, processes and operational systems. They also provide recommendations to optimize operations set points, and intelligent interventions in real time or near real time. This avoids expensive downtime and drives improved safety and reliability by processing huge volume of data from cross-functional areas of the organization. The outcome is a safer, more secure and consistent work environment allowing railroad companies to become more agile and sustainable in a fast-changing business environment. Cognitive operations examples include: Asset integrity & predictive maintenance: Enables operations to detect assets with high probability of failure and suggest optimum asset rehabilitation strategies by analyzing data from various sources such as railroad operation planning systems, asset maintenance systems and current asset status Intelligent track testing: Analyzes the data and correlations across the multiple parameters impacting rail track conditions, identify anomalies across multiple parameters impacting rail track conditions, optimize track inspection efforts, reduce track downtime and recommend optimal inspection frequency scheduling. Reduce carbon footprint of assets: Improves operations and maintenance, decrease energy consumption, and reduce the carbon footprint of assets through taking a holistic approach to the entire asset lifecycle in a 'cradle to the grave' approach resulting in increased railroad system integrity and sustainability. Remote Operations Center: Delivers an integrated-decision workspace empowering operators to assess contextual data of near real-time status, location, and local environment across all assets, it also accommodates evaluation of the impact of multiple decision-based-scenarios for optimizing efficiency and safety. TCS Intelligent Urban ExchangeTM (IUX) is a purpose-built data & analytics platform for the Railroad Industry enabling rail enterprises to meet the requirements of the connected and intelligent railroads vision. It provides pre-built cognitive solutions which help railroad companies deploy faster, reduce time to value and TCO. IUX is a powerful enterprise insights platform which has been used to develop AI/ML solutions in multiple domains including railroads. The platform combines end-to-end data-analytics and visualization capabilities with scalability, configurability and easy-to-use drag and drop interfaces. It simplifies data integration, data transformation and curation to create the enterprise data fabric and generate insights with modeling, alerts and workflow automation, and dashboarding through easy GIS integration. These capabilities empower railroad organizations to cost effectively analyze the current state, and proactively optimize the targeted maintenance, of rail tracks and railroad network health, drastically reducing end-to-end system upkeep costs while maintaining superior safety. IUX can easily ingest the railway sensor and enterprise data toward the goal of intelligent, connected cognitive operations. This innovative solution helps railroad companies become operationally resilient, achieve operational agility, improve operational efficiency by harnessing full value of their IoT and organizational data. 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. =====================

Becoming a customer-centric insurer

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knowledge of their customers and the segments they belong to, so that they can uncover the best way to engage with them to maximize retention while keeping growth, loss ratio, and other related metrics in line. Most customers today are "somewhat" or "very willing" to share their data in return for a range of benefits, including discounts, more relevant, personalized offers and notifications, and quicker claims processing. Customers also want to contact their insurer for high-quality products and services through the channel of their choice via quick and simple interactions – anytime, anyplace, and on any device. They expect real-time responses to help them solve their issues through relevant, personalized, and trustworthy interactions. Connected insurance, in the form of pay-per-use insurance and personalized product coverage is helping them to do that. But 60% of the insurers believe that their biggest strategic priority is improving customer centricity. The shift from a siloed operating framework to a customer-centric one will provide comprehensive insights needed to get customers the right coverage at the right limit at the right time. The key to customer centricity is business-ready information that can help insurers identify and drive profitable growth opportunities by knowing and segmenting their customers, understanding the products, and other factors that impact loss ratios. Insurers need to have a true and real-time 360-degree view of customer profiles and interactions. They need better insights and the ability to recommend products, and services tailored to the individual needs of their customers based on their eligibility and lifecycle stage. Having a unique record from all data sources helps in creating a 360-degree view of the customer and is beneficial for sales, marketing, product management, agents, customer service reps, claim handlers and operational users in an insurance company. It helps in establishing consistency and enables flexible interactive interactions that anticipate customer needs across different channels of engagement. It also streamlines operations by giving employees and partners access to information and processes on any device to satisfy their customers, accelerate buying decisions, and identify growth opportunities to improve sales productivity. Because of so many changes, risks are also shifting and modern insurers need to adapt their pricing models to address changes in risk or else their profitability will suffer. Competing for profitable growth requires more than just better claims processing and traditional segmentation. A greater urgency around digital adoption can help insurers predict customer needs and personalize experiences and products to delight their customers and drive lasting loyalty. =====================

How sustainability impacts the retail customer experience

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retailers need an agile, AI-driven data management and customer analytics platform that enables them to discover dynamic customer personas. That's because many retailers today still use traditional, static personas based on stereotypes that are no longer effective in a world where customer behaviors, needs, and preferences change at record speed (whether caused by a pandemic or the latest Internet meme, it doesn't matter). To build lasting loyalty, retailers need data-driven, automated persona discovery that spans customers' physical and digital journeys. These new, dynamic personas can help identify "green or sustainability" buyers, but also help to subsegment them into dark green or light green, resource conservation, health, animal, or nature people. The third step is to deliver memorable, personalized experiences that appeal to customers' personal values and goals in the sustainability space based on the data you have mined and analyzed using sophisticated algorithms and large data sets to create dynamic customer personas. Here are some brainstorming ideas to share with your teams: Delivering innovative, environmentally friendly customer experiences can turn a retailer from one vendor among many, competing on price and product, to giving consumers emotional reasons to stay loyal. By showing them how well you know them, and delivering added value in an area they value, you shift the relationship from transactional to trusted. All this, while also doing the right thing by the environment. Not all customer analytics software can help you segment your audiences by how green they are, but TCS offers a solution that can. Contact a TCS Digital Software & Solutions retail specialist today. More information about TCS customer intelligence & insights™ for retail Overview Video- Click here to view. 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. =====================

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expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Jay Gupta Project Management Specialist, TCS DSS You have these already downloaded We have sent you a copy of the report to your email again. Energy companies are facing challenges on multiple fronts, including energy prices, supply disruptions and increasing levels of safety and environmental regulations. Energy providers must become more agile, resilient and proactive to address these critical issues in order to stay competitive and operationally sustainable. As the energy industry continues to embrace digital transformation and adopts cloud technology as a core business enabler, it is becoming necessary for information- and decision-making processes to integrate data from the entire energy value chain into contextual and cognitive intelligence to achieve maximum financial performance, worker and plant safety, and net-zero emissions goals. Our model for cognitive intelligence includes an ecosystem of technologies that augment human capabilities to sense, capture and understand information to create valuable insights and recommendations for acting on complex business problems. Cognitively enabled operational systems can proactively identify assets, processes, and people risk, and deliver recommendations for operations set points and intelligent interventions in real-time or near real-time. This is accomplished by processing huge volumes of data from cross-functional operations. It empowers organizations to avoid expensive downtime, ensure workforce and workplace safety, and reduce emissions. A few example use cases will help illustrate some of the key benefits of embedding cognitive intelligence into plant operations: These use cases are just a few examples of the many ways cognitively enabled systems help energy companies become operational resilient, achieve operational agility, improve operational efficiency, and harness the full value of their IoT and organization data. TCS Intelligent Urban Exchange™ (IUX) is a purpose-built data and analytics platform for the energy industry, which brings centralized AI activation functions to enable organizations to build their cognitive operations. IUX offers pre-built cognitive solutions around intelligent pipeline, city command center, intelligent energy, intelligent transport and workplace resilience, which help energy companies and cities with faster deployment, time-to-value, and reduced TCO. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with

Is Sustainability Sustainable?

Is sustainability sustainable? TQM, MBO, Theory Z, six sigma, Quality Circles, Decentralization, Just in Time/Kanban, JAD - JAG sessions—these industry trends, culturally embraced in their heyday, brimmed with the promise of rejuvenating corporations and, by proxy, society. Yet despite the best efforts of the world's largest organizations, and billions of dollars, all have passed, or are passing, into the annals of history. Though some of the key principles survive, the actual trends are largely abandoned to make room for new ones. To be fair, it's not unusual for businesses to invest in current trends. Picking the right one can open new markets, provide a ready-made customer base, and help position organizations as thought leaders. For all the potential positives a long-term trend offers, not all trends are here to stay. What about sustainability then? The groundswell for this trend has been growing in recent years and has accelerated in the aftermath of the pandemic. But will it last? Or will it fade

after a short time like so many predecessors? What is sustainability? First, let's define what we mean by sustainability. Business sustainability, also known as corporate sustainability, is the management and coordination of environmental, social, and financial demands and concerns to ensure responsible, ethical, and ongoing success of a business, public, or social organization. In a broader context, social, environmental, and economic demands are considered the three pillars of sustainability. Within the corporate world, they are sometimes referred to as the triple bottom line. The concept is a departure from the traditional concept of the bottom line, which evaluates all efforts in terms of their short-term effect on profits. Is sustainability sustainable? To gain perspective, a quick assessment of the current business, consumer, and social landscapes will help assess the staying power of the current movement toward sustainability. Consumers: Over the last five years, consumers have exhibited a strong shift in preferences for more sustainable products. People today are willing to pay a premium for a product or service created sustainably, or at least by a brand they perceive to be sustainable. Given the option to buy from a company whose position they are unsure about, consumers will often wait to make a purchase until they can do business with a brand they trust. Employees: Increasingly, employees today do not want to work for paychecks only. Beyond a salary, they want to work for companies with missions that promote inclusivity and sustainability. Companies looking to recruit the best talent must consider these new dynamics in their hiring practices. Social: The public at large is also moving in favor of sustainability. Public opinion polls show that an increasing number of Americans believe climate change, which is strongly linked with sustainable practices, is real. Concern for the environment is a long-term interest of the American public. If history is any indication, smart business leadership will read these signs, anticipate the market shift, and seek to take advantage. Pressure from workers, consumers, and the public (not to mention current and yet to come industry and governmental regulations) should demonstrate to every company that sustainability next year and in the years to come is a necessary evolution, not a luxury. CEOs and other leaders must communicate a vision of sustainability and align their companies for success in a new, more careful world. Finally, according to the Harvard Business Review, today's executives are dealing with a complex and unprecedented brew of social, environmental, market, and technological trends. These require sophisticated, sustainability-based management. Yet executives are often reluctant to place sustainability at the core of their company's business strategy in the mistaken belief that the costs outweigh the benefits. On the contrary, academic research and business experience point to the opposite. The preponderance of evidence shows that sustainability is going mainstream, Executives can no longer afford to approach sustainability as a "nice to have" or a solid function separated from the "real" business. Those companies that proactively make sustainability core to business strategy will drive innovation, engender enthusiasm, and loyalty from employees, customers, suppliers, communities, and investors. I don't know about you, but it looks to me like sustainability is here for the foreseeable future (i.e. it is sustainable). A short sustainability example What does sustainability look like in the workplace? An energy industry example from the Stanford Social Innovation Review serves to illustrate. Ten years ago, energy companies that installed wind farms to generate electricity would have been considered as

sustainable energy producers. While that method of generating power is still categorized as sustainable, wind power by itself is not enough to fit the current view of a truly sustainable energy operation. Today, energy production sustainability is much more robust and comprehensive. A more sustainable energy system incorporates the whole grid, encompassing generation, transmission, distribution, use, and mobility. We can see signals of this change happening as new energy sources, distributed energy, demand-side management, smart appliances, and smart meters are beginning to transform our conceptions of energy. Already, jobs in the clean energy sector have exceeded those in oil drilling. As we see with the energy sector example, the potential scope of market transformation is vast. The concept of sustainability continues to evolve as shown by four new ways corporations are conceiving of their approach to operations, partnerships, government engagement, and transparency: We can help: TCS Intelligent Urban Exchange™ (IUX) TCS IUX is a purpose-built decision intelligence product providing contextual decision intelligence services, be it on asset maintenance schedule optimization, safety incidence avoidance, proactive anomaly detection and environmental, social, and governance (ESG) actions across all engaged systems and departments by connecting complete business value chains. IUX offers pre-built cognitive solutions around Intelligent Sustainability, Intelligent Pipeline, Command Center, Intelligent Energy, Intelligent Transport, and Workplace Resilience, which help energy companies with faster deployment, time-to-value, and reduced TCO. More on TCS IUX and sustainability in future blogs. In the meantime, please visit here to learn more, and email us with questions at tcs.dssg@tcs.com 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. =====================

Data privacy: A strategic imperative for the digital insurer

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Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Siddhartha Banik Project Manager, TCS DSS You have these already downloaded We have sent you a copy of the report to your email again. Customer data privacy and security has emerged not only as a complex and challenging compliance requirement for the insurance industry, but also as a potential source of competitive advantage. With better mining of existing information and the ability to take advantage of non-traditional sources and uses of IoT data-advanced voice, image, text and emotion analytics, artificial intelligence, behavioral intelligence—insurers have new ways of interacting with customers using digital means while protecting the privacy of users. This has helped insurers attract more customers with improved and personalized engagements and drive more revenue by building trusted and long-term relationships with their customers. Until now, insurers' data privacy efforts revolved around specific privacy-related regulations for their industry with narrowly focused initiatives designed to satisfy those requirements. Today, this one-off approach to data privacy is no longer good enough. There has been no compelling reason for insurance companies to embed privacy considerations deeply into their larger business strategies until a recent series of high-profile data breaches brought the shortcomings of specific privacy-related data protection to light. Some insurers have been slow to adopt the new compliance measures while others hid their heads in the sand and ignored them, believing they could outsmart regulators with partial compliance. Without a comprehensive and effective information governance program, data privacy remains a compliance challenge and a potential reputation time bomb for the insurance industry. In a recent Deloitte survey, only 25% of respondents said they are willing to provide an iris scan or fingerprint to start their car and prevent theft. The acceptance rate rose to 38% when respondents were asked about their willingness to provide physical condition information, such as respiration, heart rate, or blood alcohol level. This suggests that many consumers consider health monitoring an acceptable personal safety feature. Customer data privacy and security have emerged as a complex and challenging compliance requirement for the insurance industry and a potential source of competitive advantage. As consumers are becoming more concerned about businesses collecting, using, or selling personal information without permission, many regulators around the world are taking unprecedented interest in privacy by

establishing new, more rigorous, and effective data privacy policies and regulations to safeguard their customers. Insurance companies need more awareness and control over the data they process and share. An underwriter, regardless of the type of insurance, will invariably collect and review customers personal data ranging from demographics to more sensitive data including health history, genetic history, and physiological traits for risk assessment and processing. For example, biometric data from facial recognition software or wearables, the unified business identifier (UBI) can be cross-referenced with social media posts for deeper insights using IoT data. Pictures of sky diving and adventure sports can be used to create a loan applicant's risk profile. Regulators from New York recently allowed insurers usage of social media posts and pictures as well as non-traditional data sources to determine premium charges, provided they do not unfairly discriminate based on race, gender, sexual orientation, caste, or color or make any inferences of intrusive nature. GDPR tags this data as "special categories of data" to be collected based on individuals' explicit consent (Art. 9), and any misprocessing will attract heavy fines. Under GDPR, the use of direct marketing to find new customers requires positive opt-in by individuals, stating their consent and preferences on whether and how they want to be contacted. GDPR offers individuals the right to object (Art. 21) to personal data processing or withdraw consent when it relates to direct marketing. GDPR mandates personal data be retained only as long as it is necessary for the purpose it was collected, however, it does allow storage for longer periods when the personal data will be processed solely for archiving purposes in the public interest, such as scientific, historical, or statistical research purposes, using additional technical safeguards such as pseudonymization. The data must be deleted or anonymized after its use. Another central challenge for insurance companies operating internationally is the nature of regulations. Privacy requirements are very different from one jurisdiction or market to another. It's understood that each data privacy law has different rules and regulations, so depending on where an insurer operates, they may have differing standards that must be met. Staying compliant with data privacy laws will pay dividends for both insurers and their clients. Right now, compliance is simply the cost of doing business for the insurers but the question they have is how to align compliance with their business roadmaps and turn privacy into a business driver. Once the datacentric approach put forward by GDPR is grasped, it can help insurers establish a stronghold for personal data enabling more efficient business decisions, improving operational efficacy, creating greater credibility with customers and employees, reducing the threat landscape, and enhancing brand value. With only a small number of insurers offering cyber insurance today, this is another area where insurers can score big with products and services that help avoid, mitigate, or transfer the risk of cyber perpetrated breaches and attacks. It can be a win-win situation if insurers with holistic cyber risk management offerings are able to help their customers reduce their cyber risk profiles. Insurance companies can also improve the accuracy, quality control, and relevance of both in-house and third-party data by establishing a more comprehensive privacy governance framework leading to trust and operational efficiency. Equipped with the new data science techniques and strategic approaches to protect sensitive information, insurance companies can make positive use of new data sources. This will make them better prepared to effectively manage data

privacy in an increasingly digital world, to serve their customers more effectively with tailored offerings, new services, better pricing, and reduced time to service delivery. Insurers that focus on building a strong privacy program today and seizing all available opportunities to win customer trust will gain a competitive advantage and stand out from the competition. Learn more about how TCS Customer Intelligence & Insights™ for insurance can help your organization build strong privacy programs and create competitive advantage. Click here.   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.
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Enabling Sustainable Energy Operations

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releases, reports, and company announcements. Jay Gupta Project Management Specialist, TCS DSS You have these already downloaded We have sent you a copy of the report to your email again. Energy companies are facing challenges on multiple fronts including energy prices, supply and demand disruption, operational resilience, and environmental targets. Energy providers must become more agile, resilient, and proactive to address these critical issues to stay competitive and operationally sustainable. As digital transformations continue revitalizing the energy and resources industry, organizations are standardizing on cloud services as a core business enabler. This has led the energy industry to realize information and decision fabrics have the power to integrate vast amounts of data from the entire energy value chain. This enables organizations to generate contextual and cognitively-enabled operational insights and achieve better financial performance, worker and plant safety, and net-zero emission goals. The TCS Intelligent Urban ExchangeTM (IUX) model for cognitive intelligence includes an ecosystem of technologies that augment human capabilities to sense, capture, and understand information to create valuable information and recommendations for acting on complex business problems. Cognitively-enabled operational systems proactively identify asset, process, and people risks. They provide data-driven guidance for operational set points and intelligent interventions in real-time or near real-time. This is accomplished by processing huge volumes of data from cross functional operations. A few use cases can help illustrate the key benefits of cognitive operations: Asset Integrity and Predictive Maintenance: Detects assets with a high probability of failure and suggests optimum asset rehabilitation strategies by analyzing data from various data sources, including operation planning systems, asset maintenance systems, and current asset systems status. Enable Remote Operations Center: Provides an integrated decisions workplace where operators can assess contextual data such as real-time status, location, and local events. This can be done for all assets and improves efficiency and safety through the ability to evaluate the impact of multiple scenarios in difficult geography terrains. GHG Emissions Monitoring and Reductions: Senses emissions and predicts potential emission levels by applying machine vision-based AI of storage tank thermal images to recognize levels of stored chemical elements. This allows plant operators to evaluate the impact of those elements on the structural integrity and durability of storage tanks and provides optimization strategies to improve process and operation efficiencies. Operations Resilience: Meets business's constant and growing need to accurately predict physical system maintenance requirements and potential failure points. This allows entities to proactively apply the right resources to the right assets and maintain healthy, reliable, and resilient operations. These use cases are just a few examples of the many ways cognitively-enabled systems help energy companies become operationally resilient, achieve operational agility, improve operational efficiency, and harness the full value of their IoT and organizational data. TCS IUX is a purpose-built decision intelligence product for the energy and resources industry providing contextual decision intelligence services whether for asset maintenance schedule optimization; safety incidence avoidance; proactive anomaly detection; and environmental, social, and governance (ESG) actions across all engaged systems and departments by connecting complete business value chains. IUX offers pre-built cognitive solutions around Intelligent Sustainability,

Intelligent Pipeline, Command Center, Intelligent Energy, Intelligent Transport, and Workplace Resilience, which help energy companies with faster deployment, time-to-value, and reduced TCO. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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.

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Take the Road Less Traveled: Minimize Traffic Congestion and Carbon Emissions

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Doug Tinning Product Marketing Manager, TCS DSS You have these already downloaded We have sent you a copy of the report to your email again. From the ancient Roman road system to the Silk Road connecting China and Europe to Route 66 linking Los Angeles to Chicago in the U.S., civilizations throughout history have converted well-traveled routes into formal roads to defend borders, advance trade, and supply frontiers. With roads comes traffic, and with traffic, congestion. As populations around the world continue to concentrate into large urban centers, the roads and highways servicing them are becoming ever more congested. Worldwide, the number of vehicles is projected to exceed available road space no matter how much capacity is added. Throughout most of 2020 and early in 2021, global traffic pressures were temporarily relieved due to pandemic lockdowns. Traffic volumes are now returning to normal so that even on good days, traffic stalls and delays are commonplace. While being held up is irritating and disruptive, there is a far larger, even global, issue at play: massive amounts of carbon emissions from idling vehicles in millions. Traffic congestion is considered one of the largest contributors to the problem of air pollution today. A major part of this pollution is due to emissions from vehicles stopping and starting. In fact, a Harvard Study predicts that the estimated public health cost of the premature deaths from vehicle emissions will climb to more than USD17 billion by 2030. The cost related to premature death from traffic congestion is dwarfed by the cost of time wasted by people sitting in traffic jams, the economic cost of which is expected to reach nearly USD100 billion annually by 2030. Traffic planners, engineers, and transport experts over the world are working overtime to find practical solutions to this ever more urgent problem. The answer will not be found in a single silver bullet solution, but rather from the synergy of many smaller complementary actions and technologies spanning multiple disciplines and industries. Put into simple terms, national, regional, and local transportation agencies need integrated views of operations and events at street, corridor, and freeway levels because increased traffic volumes, congestion, and incidents impact not only traffic but can also affect emergency services, public transport, and commerce as well as air quality. They also need a real-time, multi-aspect view of transportation grids from ground level if they are to successfully respond to incidents affecting operations, traffic flows, and public safety. TCS Transportation Solution TCS has developed a solution that can play a key role in cities' struggle to minimize traffic congestion, increase public safety, and achieve carbon emission and sustainability targets. TCS uniquely combines the power of big data analytics, AI and ML, and industry models to provide insights tailored to the unique needs and characteristics of every transport network. The software collects and analyzes all types of data, from networks, sensors, telematics, and open city data, to provide real-time insights that enable leaders to keep their cities moving efficiently and safely while still achieving sustainability targets. Features TCS enhances city and traffic operations – and the services empowering them – to become more resilient and intelligent by cutting across operations and systems data silos. The insights gained from multi-department data drive more effective situational awareness and better departmental collaboration. Features include: Benefits TCS offers pre-built sustainability modules spanning transportation, utilities, energy, workplace resilience, water, climate risk, emissions, and more. Visit here to learn more, and email us with questions at tcs.dssg@tcs.com.

Make shipping smarter with connected ports

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COVID when the global pandemic severely affected the movement of goods and services? With customers rapidly embracing e-commerce, demand and supply worldwide have been in a state of non-equilibrium. Burgeoning demand and stressed supply chain across the world have caused traffic jams at ports, with the effects trickling down the entire value chain. During COVID, as dozens of container ships were stuck at ports in the US West Coast, companies that relied on supplies from Asia faced a tough holiday season, and big retailers in the US had to charter vessels amid supply crunches. Traffic jams near shipping ports, thus, contributed significantly to the supply chain disruption across the world. As the world economy grows, it is predicted that global container volumes will increase by about 18 per cent between 2021 and 2024. This increase, combined with labor and truckers' shortage, and congestion at shipping ports, is likely to cause a lot of pain to the supply chain. Connected or smart ports will ease this pain by helping plan optimal solution for such a scenario. A smart port is connected, autonomous, and enabled by innovative digital technologies. It aids better decision-making by capturing real-time information, thus helping stakeholders improve the day-to-day processes and ease the supply chain. It also enhances security and workplace safety, facilitates collaborative approach, and saves energy, thus providing more functionalities than in the current scenario. Smart ports also promote sustainability. The ports community has also realized that by embracing automation and digital connectivity, the shipping industry will be able to achieve the target set by the International Maritime Organization to reduce emissions from international shipping by 50% by 2050 from the levels recorded in 2008. At the 26th UN Climate Change Conference of the Parties (COP26), speakers from ports around the world underlined the need for green and smart ports. Smart ports will have a positive impact on the shipping industry comprising cargo owners, shipping lines, terminal operators, trucking companies, rail freight operators, and industrial operatives at large. Powered by artificial intelligence (AI), cloud, big data, internet of things (IoT), and blockchain, the ports will act as a digital node in the global supply chain. They will redefine the processes that move cargoes and services and make them more effective, efficient, and economically competitive. Security and workplace safety at ports also get a boost as each process is tracked and monitored with smart technologies. Emerging technologies like 5G, digital twin, drone, autonomous vehicles, and hyperport (using hyperloop) technology programs will enhance the efficiency of smart ports. At the Smart Ports: Piers of the Future 2021 event, Port of Barcelona announced that they have partnered with renowned tech and telecommunications companies for using 5G and AI to improve tracking and monitoring of vessels that dock at the port. Ports from across the world also explained the innovative technological initiatives they have been adopting to improve operations. The port of Antwerp, for instance, implemented a drone management system in their facilities; the port of Busan's Chainportal, a blockchain platform, changed the management of the port by providing greater process transparency, and the port of Hamburg showcased the greater traffic optimization capability they achieved with quantum computing. An infographic depicting how a smart port bolstered by digital technologies can contribute to various sustainability KPIs. Automated terminal and cargo handling enabled by internet of things (IoT), automated guided vehicles (AGVs), and robotics can, for instance, help improve efficiency and thus reduce carbon footprints. A

port community system that uses artificial intelligence and data analytics will facilitate sustainable waste management. Similarly, a traffic management system, powered by IoT, AGV, data analytics, cloud, and quantum computing, helps curtail carbon emission and noise pollution by minimizing docking delays. Ports are rapidly innovating business operations and implementing digitalization to gain competitive advantage. Smart ports improve efficiency with automated ships and vessels connecting stakeholders to ports, thus reducing congestion, pollution, and ultimately saving time and money. But when it comes to adoption of technologies, the one-size-fits-all concept doesn't apply here. To reap maximum benefits through cost optimization and to deal with workforce challenges at ports, the entire ecosystem consisting of terminal operators, trucking companies, railroads, shippers, logistics companies, and freight forwarders need to embrace automation and be connected to remain competitive in the shipping industry and at volume. To establish the connected ecosystem, a collaborative model with governance and policies needs to be developed and distributed proportionally across the port value chain. Digitalization and greater connectivity are inevitable to make smart ports of the future agile, robust, and resilient. This requires high up-front capital investment to realize the full ecosystem benefit and also mitigate cybersecurity challenges. Investments in smart ports are essential to make the most of the value-driven potential of intelligent, connected, transparent, and stakeholder-focused systems that contribute to a better and sustainable future. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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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Turning data into revenue: A winning solution for banks

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regulators and banks Previously, regulations (pre-2017) did not envisage a wide scale secure internet connectivity and cloud infrastructure. EU (PSD2-2018) and Australia (CDR-2020) have recently introduced new regulations that take a modern view of technical advancements and promote shared data infrastructure in the banking and financial industry. Many other countries are also updating their regulations to allow banking and financial companies to share and utilize data. In retrospect, banks have a significant advantage of exclusive possession of data. With new modern regulatory indicators, it is time to convert this advantage into winning solutions. The following steps are required to use data effectively: At face value, the data held and continually generated by banks, appears to be of little value in its raw state. However, if it is structured, formatted, and analyzed, it can offer significant tangible and intangible value. Today, as banks face major headwinds on traditional margins, monetizing data will alleviate some of the challenges. Fast-tracking mortgage originations through an ecosystem model Addressing Business Challenges with TCS' Knowledge Management Solution GenAI for disruptive transformation in banking Lending & Securitization Platform for Easy Digital Loan Origination 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 =====================

The software-based approach of data masking

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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. Sumeet Bhide marketing, and learning and development for TCS MasterCraft™ DataPlus You have these already downloaded We have sent you a copy of the report to your email again. Worldwide, organizations require data privacy and security controls, such as data masking, to safeguard information gathered from their customers and stakeholders. Enabling privacy-safe data sharing and access has become one of the foremost priorities of today's organizations. A company can either build and run its own data masking scripts as a niche and localized masking solution or explore a formal software-based approach to data masking. Organizations can decide their data masking approach based on their data privacy goals, the short- and long-term implications of various approaches, and their budgetary requirements. Globally, organizations are under scrutiny to comply with applicable data protection regulations to protect sensitive and personally identifiable information, which are collected and processed for business purposes. In case of a data breach, organizations have to bear heavy penalties imposed by regulatory bodies, hampering consumer trust and decelerating business. Hence, organizations require data privacy and data security controls such as data masking, to safeguard information gathered from citizens and to enable privacy-safe data sharing and access. While implementing data masking, an organization can choose to either build and run its own data masking scripts as a niche and localized masking solution or explore a formal software-based approach of data masking. Organizations may observe initial merits in building their own niche or localized data masking solution, as this approach initially requires lower investments and provides control over the solution design, making deployment appear easy. Organizations can also demonstrate their privacy awareness on immediate terms. However, over time, the benefits of this approach could lose its sheen, due to challenges related to the script-based approach of data masking. So, organizations may need to explore a software-based approach for data masking. Some challenges related to the script-based approach of data masking are shared below.   Scope: The scope of the data privacy program is dynamic and can change if the applicable data protection regulation is amended to include new data privacy requirements or sensitive data categories. The IT landscape of organizations is evolving constantly as businesses grow and undergo mergers and acquisitions. Bespoke, localized scripts and solutions may not be amenable to accommodating changes with agility, due to the evolving scope. Such modifications may have an associated maintenance cost, which may not be apparent initially. Scalability: To deliver business value with agility, organizations need swift turnarounds for their application enhancements.

This translates to the need for delivering privacy-safe data with shorter turnaround times. Given the rising data volumes and shrinking time-to-value, the niche script-based approach for data masking may find it a struggle to scale up. Self-service: Data masking, just like similar data management activities is also witnessing the trend where business and IT users can configure and operate the functionality on their own, with minimal intervention of technical experts. Handling scripts may require distinct IT knowledge, as scripts and code changes will need to be re-configured occasionally to meet specific masking requirements. Scripts will also struggle to match the usability aspect and good experience provided by well-designed and engaging software products. Functional richness: Superficially, data masking appears simple, but it is a complex activity catering to the intricacies and nuances of real-world data. In addition to data-diversity, data fields may have inter-relationships, computationally derived values, proportional distribution, or consistency requirements. This may apply to a single data store or across data stores, and lines of businesses in some cases. Niche masking scripts may not be sophisticated enough to tackle these requirements. Governance: While the data masking scripts may be successful at masking data, however, it might not be insufficient. Organizations must demonstrate the effectiveness and coverage of data masking used in data privacy programs. Data masking requires governance and tracking. Appropriate data masking metrics will need to be defined, measured, and monitored to gauge the level of completion and effectiveness. Data masking operations will need to be restricted only to certain organizational roles, and controls cannot be easily implemented using a script-based approach or a niche, localized masking solution. De-risking: A select set of employees will have the intelligence surrounding the architecture of in-house solutions and its deployments. Due to the inevitable employee churn, new employees will need to be trained, but it may not compensate the loss of knowledge, at least in the short term. This will inevitably lead to a short-term risk in engineering, deployment, and support of in-house solutions. De-risking is the driver for organizations preferring commercial software, as it shifts operational risk from in-house teams to third parties.   Data masking implemented through niche masking scripts, as a bespoke, localized solution may seem convenient, initially, to an organization. However, they present various long-term challenges, which can be alleviated through formal data masking software. Organizations can decide their chosen approach to implementing data masking based on their strategic data privacy goals, study of short- and long-term implications of both approaches, and their budgetary requirements. Overcoming Barriers to Gen AI Adoption Enhancing Dealer Network Management with Master Data Management The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age 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 ======================

Deep learning holds the license to autonomous driving

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and auto components like sensors, high performance computing units and so on. Furthermore, capital investments and considerable advancements are being made towards achieving level 5 or full autonomy. The semi-autonomous or SAE (Society of Automotive Engineers) defined level 2/level 3 vehicles require partial human intervention, and accidents with pedestrians, cyclists, drivers, or other objects cannot be ruled out. A system that doesn't act on a predefined set of rules but processes real-time information to make life-saving critical decisions based on AI and ML is the need of the hour. More than $50 billion has been invested in the autonomous vehicle segment in the past five years. Over 70% of these investments have been made by investors outside the automotive industry. Deep learning has helped solve complex automotive demands. Autonomous driving consists of three major components: sensing and perception, path planning, and control. Level 2/3 semi-autonomous vehicles have rule-based control algorithms implemented in conventional controllers. These however cannot support higher autonomy, which requires intelligent planning and control with absolute accuracy. With the availability of high-performance computing (HPC) platforms for training and calibration of deep learning models, autonomous driving software development has shifted towards deep learning-based approaches. Deep learning in AI has helped solve complex image processing, speech recognition, and natural language processing requirements. Deep learning can also help in obstacle detection, perception of surroundings, driver behavior monitoring, validation of systems, path planning, sensor fusion, intelligent control of vehicle dynamics, diagnostics, cybersecurity, and a lot more. Deep learning has been predominately deployed in sensor processing and perception. To achieve full autonomy (SAE level 4/level 5), we need to explore deep learning in control systems as well. Deep learning-based control can help manage complex lateral and longitudinal maneuverings. It can effectively calculate steering commands for lateral control and acceleration and braking commands for longitudinal speed control of the vehicle. Even so, the safety of deep neural networks can be unstable under adverse conditions. To ensure safety, the automated control system must be trained using varied data sets. Deep learning-based control algorithms, to be fully functional, should be trained on a multitude of diverse datasets including geography, weather, and road conditions such as dynamic road environments, background lighting, position, dimension, color, and shape. As we move towards full autonomy, organizations should also be equipped with highly accurate and efficient platforms for data handling, and AI-based algorithm development and validation. We should now aim to build safe, reliable, and viable autonomous vehicles. We must try to ensure full autonomy to ensure road safety. With technological intervention, we can expect fully autonomous vehicles to take over in the near future. This will make life comfortable and convenient with greater mobility for millions of people including those with vision impairment and other disabilities. However, for autonomous vehicles to go into mass production, it is critical to ensure that they are safe, reliable, and viable, and in such a scenario, deep learning technology may well be the answer. Over the next few years, we can envisage cost-effective, efficient, and reliable vehicles on the road that transform our on-road commute experience. 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

How IoT can bring life to things

----- Arcticle source ----- https://www.tcs.com/insights/blogs/perspectives-articles-bringing-life-to-things-a-framework-for-iot ----- Services Bringing Together IoT and Digital Engineering to Create Rich Experiences In this article Companies need clear strategies to guide their IoT initiatives Getting Major Returns on IoT Technology The biggest benefits of IoT technology come when companies make their 'things' self-aware. Principles The numbers About the author More blogs 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. Regu Ayyaswamy Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. 6 MINS READ Regu Ayyaswamy Senior Vice President & Global Head of IoT, TCS You have these already downloaded We have sent you a copy of the report to your email again. The 'real' world today, is a combination of digital and physical—it's multi-state, dynamic, and live. By adding sensor physical things and connecting to the digital ecosystem—they become responsive and closed loop—hence, can grow, evolve and adapt to the dynamic context. IoT brings Life to Things. Thus, by combining physical context and digital intelligence—a synthesis of human and AI—customers can unlock the latent, unexplored and limitless

possibilities, and extract exponential value. A hotbed of activity around Internet of Things The billions of digital wireless sensors that are embedded in products, attached to building walls and factory lines, resident in things we wear (digital wristbands) and inside the devices we carry (mobile phones) are testimony that we're living in an IoT age. They have already begun to change the way companies operate in every sector. A TCS survey this summer on how more than 1,000 North American and European companies have been digitizing their businesses found just how crucial IoT technology has been. Nearly two-thirds (64%) said digital wireless sensors have had an extreme or high impact on their sector's digital transformation this decade. A higher percentage (68%) predicted that strong impact would continue into the next decade. Four industries reported the highest impact from IoT: telecommunications, automotive, retailing, and consumer packaged goods. (See Figure 1.) Yet, getting big returns on IoT technology is a challenge at many companies. In a TCS survey this spring with 516 marketing executives in North America and Europe, only about one in five (22%) are using digital data from digital sensors in their products to personalize communications to customers in post-sale support. Other studies also point to low overall usage of IoT technologies, and even lower returns. For example, a 2018 study by McKinsey found that less than 30% of companies with IoT initiatives had moved them past the pilot stage. And in 300 companies with large IoT programs that were long past the pilot stage, only a sixth generated improvements of at least 15% in lower cost and/or greater revenue. From our vast experience, generating high returns on IoT investments requires a top-down strategy whose overarching goal is a specific (and large) improvement in the business—not technology gains. We believe companies that are on the path to getting exponential value from IoT are focusing their investments in four primary ways. Let's get into each one. (See Figure 2.) 1. Launching new business models Companies such as Rolls-Royce PLC and Caterpillar have been early adopters of IoT. They have installed wireless sensors in their products: aircraft engines for Rolls-Royce, and construction equipment for Caterpillar. Those technologies have enabled these and other manufacturers to monitor the performance of their products in the field, and thus alert customers when they need to be maintained, repaired, or replaced. For example, Rolls-Royce uses on-board sensors in its aircraft engines and satellite communications to collect performance data for airlines. The company that creates a 'digital twin'—a computer-based replica of its engines—and uses the data from the real engine to replicate its performance in the virtual versions. The virtual engines then use artificial intelligence-based analytics to determine how well they are operating and predict when they will require maintenance. Caterpillar, a $54 billion global manufacturer, counts 850,000 of its machines that are digitally connected through sensors and communications networks that receive data on their operating performance. The company believes that tracking equipment performance through this digital capability will be key to doubling its service revenue, from $14 billion in 2016 to $28 billion by 2026. With IoT sensors in their products, these manufacturers can change their business models—from selling equipment that customers own, to renting that equipment to customers, who then can pay depending on how much they use the products. In the future, this new business model can evolve to become a networked ecosystem model, whereby certain other players in the ecosystem can get value from a manufacturer's database. 2.

Creating seamless customer experiences IoT sensors give companies an unprecedented capability: the ability to monitor how their products (and their companies) are performing for customers throughout the customer life cycle. Customers that want their products to be working continually in a frictionless manner, and with minimal downtime, view this capability as a great benefit. Caterpillar and Rolls-Royce know the performance of their digitally connected products in the field. Since the overall customer experience extends far beyond the purchase, this is a major capability. In TCS' survey of 1,010 CIOs, we found that the most successful companies in generating revenue from their digitally enabled products and services were more likely to view IoT as creating future business growth than were least digitally successful firms. Some 61% of the 'digital leaders' believe IoT is very important for growth vs. only 46% of the digital followers. 3. Optimizing value chains Digital sensors embedded in products are not the only source of value from IoT technologies. When companies install such sensors in their manufacturing and distribution operations, remarkable improvements in cycle time, cost, quality, and shrinkage (i.e., products disappear due to theft, etc.) are possible. IoT makes these supply chains more flexible—that is, able to automatically change themselves due to weather, transportation bottlenecks, and other disruptions to the flow of products from factory to customer. Product shrinkage is a major goal of a number of IoT supply chain initiatives. For example, the global pharmaceutical sector has been implementing 'track-and-trace' programs to reduce the number of counterfeit drugs. Forrester expects such initiatives to be the biggest driver of IoT spending in the supply chain by 2023, a year in which it predicts that companies around the world will spend $435 billion on IoT. Researcher Gartner predicts that more than half of major global firms will have deployed IoT sensors, AI, and analytics in their supply chains by 2023. 4. Improving the quality of life A growing number of companies have installed IoT sensors in their factories and distribution networks to improve safety and security. There's good reason for this. In the U.S., more than 410,000 injuries and 300 deaths occurred in factories in 2016, while in the UK factories had 60,000 injuries and 19 deaths as a result of industrial accidents. As a result, workplace surveillance and safety have moved to the top of list of boardroom topics. Companies are using smart technologies such as laser scanners and digital sensors in factories and warehouses to more safely operate robots and cranes, prevent collisions, and reduce other workplace accidents. Some firms are using technology to monitor employees —i.e., truck drivers and machine operators—checking to make sure they aren't overtired. Within IoT initiatives focused on safer operations are those focused on improving the health of customers, especially consumers. A great case in point is Procter & Gamble. The consumer packaged goods giant has been selling a digital electric toothbrush that tells consumers how well they're using the device, with sensors and AI embedded in it. P&G see such capabilities as vital to improving patients' dental hygiene—and keeping the company competitive in the $5 billion 'brushing market'. Extracting exponential value from IoT   How do you make sure your company is on the path of unlocking the huge hidden value of IoT in its value chain? Three overarching principles must be in place: A perfect time to Bring Life to Things As we've illustrated with these examples, the time is now for companies to seize the bountiful opportunities of implanting digital intelligence in their products, production operations, and distribution

channels. Companies that have done so and brought life to things with a clear, strategic path are becoming entities that their customers can't do without. The framework in this article points the way companies need to gain substantial and ever-improving value from their IoT investments. Adding value 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 =====================

Managing last mile delivery with IoT

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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. Rajagopal Yajamanam Head of IoT, TCS You have these already downloaded We have sent you a copy of the report to your email again. Last mile delivery is the final step in a delivery process that ensures that goods reach the end user. It is worth noting that around 53% of the cost of shipment is spent in last mile delivery. While companies bear around 25%, the rest is borne by the end customer. Usually, execution of last mile delivery involves small parcel shippers in a range of 50 to 100 miles. Studies estimate that parcel shipments will continue to grow and could double in the next 10 years. Now that you understand what we mean by last mile delivery, let's dig deeper and try to understand some of the many challenges companies must overcome to decide the optimal strategy to implement an efficient last mile delivery process. Urban deliveries are always challenging due to traffic, parking regulations, and adverse weather conditions. Product complexity is another problem, especially for high-value or specialty products. Driver shortage and capacity crunch are the other hurdles, especially for North America. The retailers and shippers have their job cut out to be able to provide a superior customer experience and enhance brand loyalty. In a desperate effort to control costs and positively impact end customer's experience, companies are increasingly insourcing last mile logistics. Some of the key aspects of this shift include: IoT-enabled logistics solution key to last mile delivery Effective last mile logistics allow shippers to get more products to end users on time. Promising trends emerging in this space include delivery lockers, and delivery by drones. IoT adoption remains key contributor to the success of such initiatives. IoT solutions, such as TCS DigiFleetTM, provide real-time actionable insights to enable companies address dynamic requirements of route scheduling to deliver on time. Predictive engines go one step further they factor in possible delays to provide accurate delivery ETAs and updates. The level of inventory optimization is also going to impact last mile delivery. The landscape of last mile delivery is set to change dramatically in the near future. Find out more about how to ride the change and transform the last mile delivery to ensure superior customer experience. 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 ======================

Ensuring vaccine transportation and delivery with IoT

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population in the intervening 183 years. Similarly, the polio vaccine was discovered in 1955 but even 65 years later, the disease was endemic in two countries. Such delays can be attributed to the lack of technology, improper vaccine management, and inefficient logistics. It goes without saying that we cannot afford such delays in the case of COVID-19 vaccine availability. If you are a vaccine manufacturer, or a government agency responsible for strategizing the transportation and distribution of COVID-19 vaccines, ensuring maximum reach and minimal wastages must be your primary concern. COVID-19 vaccines are currently being manufactured only by certain countries and ensuring accessibility at every corner of the globe is not an easy task. In March 2021, Johnson & Johnson committed to delivering 100 million vaccines shots to the U.S. within two months, but such an ambitious target still falls short of the requirements. Optimizing vaccine production and management is one of the key priorities as it will help reduce the cost per dose and make it affordable for people from some of the poorest nations. Then comes the problem of storage. Most of the vaccines are required to be stored and transported at very low temperatures to ensure their effectiveness and appropriate state before they are administered. For some vaccines, the dry ice in the thermal zippers must be replaced within 24 hours and again every five days. And you can only open the box one or two times a day. The vials must be transferred to refrigerated temperatures within 15 days of production and used within five days. Also, the temperature of pharmacy chain distribution carriers must be as low as -80 degree Celsius. This makes both storage and last-mile delivery of the vaccine quite challenging. And the costs can be high -- temperature mistakes in vaccine distribution have led to losses of $34 billion annually. We need a system that can ensure efficient vaccine management and logistics that addresses these challenges, and an IoT-enabled vaccine management system holds the key. An IoT-enabled vaccine management ecosystem is powered by route-planning and predictive traffic monitoring that prioritizes the distribution based on availability, requirement, and constraints. Pharmaceutical companies report a 5-20% wastage in vaccines. An IoT-enabled tracking system optimizes available resources and reduces spoilage. This helps reduce the distribution and quality control cost, thereby making it more affordable for the end user. Cold chain tracking using IoT sensors and managing alerts with the help of artificial intelligence allows the stakeholders to have real-time visibility of the vaccine, so that the vaccine reaches the end user in an intact condition. An IoT-enabled, track-and-trace system allows OTP-based, mobile-enabled proof of delivery that ensures the vaccine reaches the correct recipient and captures the exact time and place of transfer of ownership. Built on an IoT-enabled platform and focused on providing real-time insights, TCS DigiFleetTM enables stakeholders to monitor vaccine vials, predict excursions, track delivery ETAs and delays, considering dynamic business requirements. It is important to note that an efficient supply chain and distribution plays a vital role in ensuring the efficacy and safety of the vials, which is critical to our fight against this virus. Technology has indeed come a long way from just being a facilitator to being an integral part of our daily lives. 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 ======================

Accelerating autonomous driving with virtual validation

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competence. However, the scope for disaster in autonomous driving is yet to be marginalized. To ensure enhanced accuracy in obstacle detection, environmental awareness, data analysis, and decision-making for vehicle control, autonomous vehicles will need to be driven hundreds of miles before we accept their performance and reliability. This is an iterative process with a high dependency on manpower for real-time testing. In addition, the vehicles need to be tested in a wide range of scenarios before deployment. This could mean long waiting periods given that certain scenarios such as a snowy road, hailstorms, heavy rains, and traffic congestion are difficult to cover in real vehicle testing. Real-time testing in such rare scenarios is time-consuming and capital-intensive. Undoubtedly, a bulk of auto players' resources goes toward software R&D. This is where virtual validation, or the testing process in which the environmental test conditions are virtually simulated, comes in.   Making testing easier and affordable. Automated vehicles must be tested in every possible complex scenario. Testing all systems in the virtual environment rather than validating all the scenarios in the physical environment using actual vehicles will be cost effective and time efficient. However, manually creating virtual test scenarios would require domain knowledge of all possible situations. An easier way out is to shift to virtual validation by performing digital validation of AD systems. To perform virtual validation, we need to create virtual test scenarios that cover all operational design domain (ODD) parameters like weather, traffic signs, and road geometry by incorporating the National Highway Traffic Safety Administration (NHTSA) framework, New Car Assessment Program (NCAP) test protocols, and International Organization for Standardization (ISO) standards. This creates a database of environments in which a vehicle will be driven in real-time test scenarios. Original equipment manufacturers (OEMs) collect a huge amount of sensor and vehicle data from test drives. This requires them to perform extensive physical testing to test the reliability of the autonomous vehicle in different environments. And this is hugely expensive. In such a situation, virtual scenarios can be automatically created from vehicle recorded logs using AI, where software can be first tested in a virtual environment and then fine-tuned further, reducing the dependency on test drives and the workforce. An infographic depicting how virtual validation can be implemented using virtual test scenarios that cover operational design domain parameters like weather, traffic signs, etc. Virtual validation also has many business benefits such as faster time to market, reduced testing cost, and more.   Rain or shine, simulation-based validation can create different scenarios for testing. Different environmental and traffic conditions can also be created to generate multiple combinatorial test scenarios for ODD coverage. For example, vehicle data recorded during clear sunny weather on a less crowded highway can be transformed into a digital scenario with dark cloudy weather along with traffic jams. Such scenarios, if generated in open standards, can be further imported with third-party simulation tools like NVIDIA DRIVE Sim, IPG carmaker, dSPACE ASM, PreScan, and Carla. This digitally transformed data can be reused to validate future software releases with minimal real-time vehicle testing. This will further enable AD systems to be validated robustly and efficiently. Reducing human and machine errors with highly accurate data handling platforms, advanced precision algorithms, and AI techniques. To get to complete autonomy, auto players need highly accurate and efficient platforms for data handling. They should be able to implement advanced

precision algorithms and state-of-the-art AI techniques for better safety and travel experience. This can effectively reduce human or machine errors. Virtual testing in AD can help automotive players to accelerate the process of testing for performance and safety and help auto-makers achieve early time-to-market while reducing vehicle test drives, resource dependency, and costs. To accelerate validation of autonomous vehicles, we need digital transformation by creating virtual test scenarios ensuring the coverage of all Operational Design Domain (ODD) parameters. 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 ======================

A proactive approach to elevate IoT security

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company announcements. 3 MINS READ Kumar Siddharth Solution Architect, TCS You have these already downloaded We have sent you a copy of the report to your email again.   Global IoT market to touch $1.1 trillion by 2025 Over the last few years, we have witnessed a prolific adoption of Internet of things (IoT) technologies across industries. We now live in a more agile, smarter, and connected world. The IoT revolution is just unfolding—in the near future, we are likely to see unprecedented growth in the adoption of IoT devices and solutions with the advent of 5G networks. These networks will eradicate the digital divide by providing high-bandwidth Internet access even in remote areas. A popular market research company predicts global IoT security market size will grow from $14.9 billion in 2021 to $40.3 billion by 2026.   IoT security is fast emerging as a top business priority Beyond doubt, IoT devices drive business value. However, they also present a vast attack surface due to their internet-supported connectivity. According to this research, 57% of IoT devices are vulnerable to medium to high-severity attacks. While 41% of respondents felt the approach to IoT security needed much improvement, 17% said a complete overhaul was necessary. There is a need to secure IoT devices to reduce cyber risk for organizations. Therefore, a security framework for enterprise IoT solutions, including IoT risk management aligned with the organization's cyber risk strategy, is necessary.   Six things you should not ignore while picking your IoT vendor Assess if the vendor ensures compliance of their device to applicable security and statutory privacy regulations. Ensure vendors have comprehensive and transparent policies and standards for the security and privacy of IoT solutions. Encompassing hardware, firmware, communication, data storage, application, platform, data retention, and business continuity. Determine the IoT vendor's ability to notify and respond to hardware, firmware, or application security vulnerabilities. Find out if the vendor uses third-party libraries or open source components. Ensure the vendor has adequate insight into the device's security during firmware updates if there's no software bill of materials (SBOM). Ensure availability of solutions from the vendor for security management of IoT devices through the deployment of security fixes or patches locally or remotely over the air (OTA) and monitoring of devices for security threats. Ensure vendor's security assurance of IoT devices, gateways, applications, and platforms through vulnerability assessment and penetration testing.   Avoid these pitfalls when deploying IoT solutions. Be aware that IoT hardware running custom firmware or lightweight services can be immune to attacks or breaches even if they have not been exploited yet. There have been instances where IoT devices were exploited because there were no proactive measures to detect and fix vulnerabilities. A recent instance has been the discovery of Access:7 vulnerabilities potentially affecting over 150 devices consisting of several medical imaging and laboratory devices, among others from more than 100 vendors. Secondly, do not solely rely on generic vulnerability scanner tools meant for IT systems to detect vulnerabilities in IoT devices. On the contrary, conform to testing methodology tailored for IoT devices and use specialized tools to beef up IoT security. Take a proactive approach to boost IoT security. The threats to IoT systems are on the rise. Therefore, it becomes imperative to introduce appropriate security controls consistent with the intended use, perceived threat, and impact on the business, user, or environment if the devices are compromised. In February 2019, the European Telecommunications Standards Institute released the

first globally applicable standard for consumer IoT security. In the US, one such protocol is the Internet of Things Cybersecurity Improvement Act of 2020, directing the National Institute of Standards and Technology to create minimum cybersecurity standards for IoT assets controlled or owned by the United States government. With stakeholders implementing and self-enforcing such regulatory standards, organizations across industries can deploy secure IoT solutions and ensure seamless connectivity for a better future. The IoT value chain is intricate, with high interdependence between all stakeholders. Every link in the chain, including the end user, IT team, IoT vendors, and organizational stakeholders, is responsible for ensuring IoT security. Implementing Generative AI Models in Industry Value Chains 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 Theme Font size Line height =====================

How a machine-first approach transforms cognitive operations

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catalog of the latest news stories from across TCS. Discover our press releases, reports, and company announcements. 4 MINS READ Ashok Pai Global Head of Cognitive Business Operations You have these already downloaded We have sent you a copy of the report to your email again. Focus on building intelligent operations to pivot your digital transformation journey Enterprises' digital transformation often focus on operations that directly touch customers. They build mobile apps for customers to purchase their products and services or answer inquiries and complaints through social media. No doubt these efforts are important. However, relatively few digital transformations zero in on operations such as supply chain, finance, and internal knowledge networks. All of these can go a long way in improving customer experience and enhancing quality while boosting profitability, even though customers may not have direct exposure to these operations. Take the case of a mobile app that makes it easier for customers to choose and order a product. If the product doesn't arrive on time because of broken supply chain systems and processes, the app usage will plunge. The bottom line? Digital transformation must reach much deeper into a company's operations to enable them to: The good news? Data and the technology to make this possible are available in abundance. What happens behind the scenes in a company can be automated and enhanced with powerful digital technologies such as AI, cloud computing, and analytics. We call this a machine-first approach. What happens behind the scenes in a company can be automated and enhanced with powerful digital technologies such as AI, cloud computing, and analytics. We call this a machine-first approach. Creating intelligent operations with a machine-first approach Let's look at the three main elements in this approach: Two factors make it possible today to take this machine-first approach to digital transformation. Leveraging digital technologies to automate business systems and processes and tap into data Taking a machine-first approach to building cognitive operations requires executives to move on three fronts: Today, enterprise leaders can take advantage of machine learning, AI, and advanced analytics capabilities to identify operational inefficiencies and determine how to fix them. In many cases, this does not require a huge overhaul of business operations. Often, companies only need to fine-tune their business processes and with automation they can realize benefits in a short time. However, leaders need to constantly eliminate redundant and outmoded systems and processes, while investing in more effective systems and processes. Five quick wins businesses can get from building machine-first cognitive operations. Firms we have worked with have experienced the machine-first advantage throughout their operations: These examples show the power of a machine-first approach to designing important business-outcome focused operations and embedding them with automated intelligence. Companies that have adopted a machine-first approach are unlocking new value from cognitive operations and leveraging it as a competitive differentiator. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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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Seven keys to enterprise-wide cyber resilience

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Mimi, which was trojanized to deliver backdoors to steal data from major operating systems. Implement a strong preventative control regime that can periodically and proactively monitor end-to-end operations as recommended by major cyber security frameworks such as National Institute of Standards and Technology (NIST) and Sysadmin, Audit, Network, and Security (SANS). Paving the way forward with periodic, proactive, and predictive cybersecurity Fast evolving threat landscape is driving enterprises to double down on efforts to prevent cyber attacks and improve cyber resilience. Companies must be prepared to minimize data loss, ensure steady business operations, and sustain customers' trust in the event of a breach. So, what can they do? Implement a strong preventative control regime that can periodically and proactively monitor end-to-end operations as recommended by major cyber security frameworks such as National Institute of Standards and Technology (NIST) and Sysadmin, Audit, Network, and Security (SANS). Seven tenets you can't afford to ignore in the cyber resilience roadmap To keep a check on your organization's cyber defence effectiveness and efficiency from time to time, we recommend that you focus on these seven key areas: Asset inventory: Maintain a sanitized inventory of assets, along with mapping of assets to the right business owners and teams. Tag assets based on risks with periodic audits. Regular security checks: Conduct security health check on assets, especially on your crown jewels. You could start with by performing a simple periodic internal vulnerability assessment and progressing toward penetration testing and then upscaling to niche activities like threat hunting and red teaming by external teams. Principle of least privilege: Be mindful to provide privileges only for the duration needed to complete tasks and audit the policies and procedures which govern this principle. It is ideal to implement the 'Deny by Default' policy and make sure to have a multi-layered authorization system rather than having just a single sign-on (SSO)-based authentication for even privileged internal users. Contextualized deployment: The philosophy of 'procure and deploy' top-notch security products or solutions will not suffice. Companies need to make intellectual investment to study their existing IT landscape, the gaps associated with it, and take informed decisions to pick the right solution to address their security need. Technology and process audits: Conduct these audits with the help of experts from external firms who might most likely find more gaps, and not just by members from internal teams who may conduct biased assessments. Transparency of audit findings: Share the observations, exceptions, and results of the audit transparently with the board and CXOs, enabling them to take appropriate technology and process decisions. Enterprises should also minimize shortcuts and workarounds, especially for cybersecurity-related issues. Prep with a mock cybersecurity breach: Mimic a security breach within projects and periodically test the effectiveness of implemented cybersecurity controls. Invest in building your cybersecurity muscle A successful cyber resilience journey begins by putting the right team in place to define, deploy and monitor the implementation of the cyber defence plan and its efficacy. While even the best of cyber defence walls are prone to breaches, always focus on strengthening it from time to time by creating a strong, layered defence mechanism, which is not just built and backed up by technology elements but complemented by an equally strong and overarching governance mechanism. Aim to deter, delay, and downgrade a cyber attack to minimize damages and maintain business continuity. The Role of AI in HRMS Industry

Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 =====================

Supporting the enterprise ESG vision in the E&C industry

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these already downloaded We have sent you a copy of the report to your email again. ESG (environmental, social, and governance) demonstrates clear organizational purpose and values and is important for all levels of the organization. Technology is a key enabler of ESG regulatory compliance for the engineering and construction (E&C) industry and can help grow from the setback of 2020 recession in the USA. The construction industry comprising industrial, commercial, residential, infrastructure—that encompasses civil, roads, rail, ports, power, water, waste, data center, and so on—lags across most dimensions of digital maturity. The current manual process to consolidate reports from all functional areas per project has made it difficult to acquire a holistic view of supplier activities. Without capturing the right data at the right time, it is challenging to identify opportunities and areas for improvement.   Sustainability is the focus of many emerging construction industry trends. Increasing scrutiny by investors on ESG factors is leading construction companies to reassess the way they conduct business with stakeholders. Changes in policy like requiring properties to be assessed and rated for energy performance has led to a critical tipping point in the construction industry. Also, investors are eager to invest in companies that integrate ESG factors. The entire sector is rethinking its plans, designs, to construct and operate in a more sustainable manner. From building to managing an asset, the illustration depicts the environmental, social, and governance needs of an asset throughout its lifecycle. The first five years are the asset building stage which consist of planning, designing, preparing, constructing, and commissioning and handover, followed by the next 20-50 years of the asset management stage, which include operation and maintenance, adapting, reusing or recycling, and demolishing.   E&C companies are experiencing increased interest in their environmental service from their clients. This is also a driving factor while these companies are aspiring for carbon neutrality in the next two to three decades. Environmental performance is bound to attract individuals as ESG standards become critical factors for them in deciding for whom they work. Existing constructs stemming from archaic architecture and poor data handling practices are a big impediment for ensuring enterprise-wide data consistency and quality—which can help E&C companies achieve these goals faster.   Firms are trying to create long-term efficiencies and competitive advantage through connected construction and advanced construction materials. The construction industry has recently seen greater digital adoption and its implementation is at an unprecedented pace due to the COVID-19 pandemic. Integrated systems are expected to drive efficient processes, provide accurate and standardized data to suppliers, clients, employees, projects, and materials. A single point of data entry into a master system which is then automatically updated across all the other systems, will ensure uniformity of data. With a whole focus on artificial intelligence, we might also look at the whole new frontier of collecting social and environment information and create a 'single pane of glass' to view company's own, and its suppliers', performance on various parameters related to ESG standards. An illustration depicting an ecosystem approach that will integrate systems across the organization and replace Excel spreadsheet-driven reports with automatic updates to the central data hub. At the center is the digital core. Expanding outwards is employees, suppliers, customers, projects, and materials, followed by integrated systems and efficient processes. ESG standards is the outer layer.   Digital

construction, characterized by an ecosystem approach, will be a key enabler for adjusting to new market realities. Top technologies like building information modelling (BIM), digital supply networks, digital twins, autonomous rovers and drones, and their integration across systems can help replace Excel spreadsheet-driven reports with automatic updates to the central data hub. This gives the board their fully automated Monday morning reports with performance measured against agreed ESG KPI, and the ability to view trends and support continual improvement, material tracking, ongoing development, automation of building regulation compliance reports. In addition, the central data hub can help with workforce reporting - including diversity and inclusion. The entire EPC ecosystem is reinventing itself for quick deployments, planned maintenance, optimized utilization for higher productivity, predictive insights of operation, and production efficiency management. Ability to harness the power of data from disparate data ecosystems will be key to fuel business growth. A complex data ecosystem consists of enterprise data (HRMS, payroll, finance, and the like), site operations data, project-specific design and execution, supply chain management, partner data across construction projects, audit, operational, as well as smart build environment data generated from smart assets and buildings. Modern technologies enablement, collection of social and environmental information, standardization of data, and transparency will make data interpretation more relevant for reporting purposes. Advanced technology can be used to measure the effects on the environment (including carbon footprint) throughout the building's lifecycle—design, construction, operation, maintenance, renovation, and demolition stages. Digital solutions with regained digital maturity can even become the enabler of new revenue streams. Also, we must recognize that not every solution is required to be unique to each industry. A connected workers platform (for health and safety of employees) and a workforce management solution are some of the solutions that can be implemented across industries with a focus on configuration—and not customization. Digital skills are most in-demand and building these capabilities in-house can be slow and expensive. Instead, a combination of in-house and IT service provider can add scale to capabilities rapidly in a cost-effective manner. E&C companies must stay aware of global trends, regulations, and compliance requirements. The right technology, combined with strategy and speed, to bring people together at an extraordinary time will support the enterprise ESG vision and enable value creation for all stakeholders. ESG focus is imperative now, and by jointly working with the ecosystem, the right capability and digital maturity will enable E&C companies to publicly report performance as per ESG standards. 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 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 =====================

Making food safety smart, the neural way

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were not harvested on time, indicating a huge source of food wastage. According to the Food Waste Index Report 2021, each year, 17% of global food production is wasted, 26% from food services, and 13% from retail. The issue is so acute that the United Nations has stated that by 2030, it intends to reduce food wastage as part of its Sustainable Development Goals. Countries and organizations are working to this end by incorporating innovative approaches and technologies such as predictive supply chain analytics or institute collaborations to develop a profitable product from food waste. The food value chain spans farm production, collection and storage, food processing, food packaging, and retail and food services. Food safety-related challenges are spread across all these touchpoints and are different at each stage, as illustrated in Figure 1. An illustration showing various challenges related to food safety across the value chain stages of farm production, collection or storage, processing, packaging, and retail services. These include overuse of fertilizers, lack of knowledge about soil health, absence of integrated monitoring systems for storage environments, incorrect use of packaging materials and mislabeling, and so on.   The lack of knowledge of soil health forces producers to use inadequate agricultural inputs such as fertilizers and pesticides. In some cases, the dearth of knowledge leads to an overdose of these inputs, which leave chemical traces, creating health hazards when consumed. According to the National Academy of Agricultural Sciences, 10% of every 1,000 lakh metric tons (MT) of wheat is wasted in India due to improper storage, and losses are associated with spillage, rodent attacks, pilferage, and more. In late 2019, approximately 1,941 pounds of raw chicken produced by a Santa Clara, California-based food processor were recalled due to mislabeling by the US government's Agriculture's the Food Safety and Inspection Service (FSIS), which is part of the United States Department of Agriculture (USDA). Such challenges are spread across the food value chain. While regulatory bodies across regions, such as the GLOBALG.A.P. (Europe) and the FSIS, have their standard operating procedures to keep food processing practices in check, these are not uniformly implemented due to complex reasons. For instance, while food processing companies need to follow the standard guidelines set by authorities like the GLOBALG.A.P. and the USFDA, they still may face food safety issues since the raw materials they use may not be produced keeping in mind food safety guidelines. Regulatory bodies such as the GLOBALG.A.P. typically offer recommendations about farming practices, but do not state food processing standard operations. Currently, no regulatory body traces these challenges across the entire food processing value chain. As a result, many cases of food recall in North America have occurred due to the wrong choice of raw materials, rather than any issues with food processing operations. With rising complexities in the food value chain, the food manufacturing and distribution business has become more customer centric. Companies with a resilient business structure reduce variability and earnings sensitivity to external shocks, such as supply chain disruptions due to war. Having end-to-end visibility in the food network helps food companies and their stakeholders synchronize all activities and offers them a comprehensive understanding of their operations at all levels. Technology is the lynchpin in such cases where machine learning (ML), artificial intelligence (AI), big data, internet of things (IoT), digital twin, and smart packaging lend neural traits to the entire food value chain. Neural networks provide organizations with the right tools to predict potential problems and,

in some cases, offer preventive steps, as described below (also see Figure 2): An illustration showings the various technology interventions at each stage of the food value chain that could help address the food safety- related challenges. These include AI-ML based modelling, robotics and automation, predictive analytics, AR-VR based remote monitoring and maintenance, digital twins, and genome sequencing.   The adoption of connected, automated, cognitive, resilient, and intelligent technologies across the food value chain supports the sustainable journey of companies. Despite the challenges of food safety, large conglomerates, governments, and food regulatory authorities have adopted digital tools to ensure food security with a focus on enhancing consumer experience. The neural approach helps companies and stakeholders in the food safety ecosystem predict potential problems, enhance decision-making, and take preventive measures to reduce food wastage and foodborne illnesses. Let's talk For fresh insights on the manufacturing industry, please visit our page on tcs.com and/or write to us at manufacturing.solutions@tcs.com. How TCS is Supporting GM's Electric Vehicles Development Future proofing IT for Urban Air Mobility and eVTOL operations Elevating Tata Motors Limited's Customer Experience Through Digital Transformation Software-Defined Factory: A paradigm shift enabling the Factory of the Future 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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Expanding consumer data rights to open finance

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automatically move funds to minimize fees or optimize interest, automate payments toward an investment or savings goal, or switch to a better plan. Action initiation will make the CDR regime much more effective and will offer financial institutions a competitive advantage by supporting new and innovative business models. CDR is on its way to becoming an industry-agnostic data sharing standard across all industries in Australia. Although CDR started with the banking industry, it has also gone live in the energy sector. The manufacturing sector and non-bank lenders are also designated to be in the CDR regime to support a data-driven economy. Combining energy data with that from open banking, banks can offer more personalized products and services such as carbon footprint tracking. This will help customers understand the environmental impact of their lifestyle and enable them to take necessary measures to reduce its impact on the climate. Using CDR data, consumers can take control of household expenses. Combining non-bank lending datasets with banking data means consumers will be able to compare lending products more easily and discover a better-tailored, more competitive deal. Australia has expanded CDR data access by introducing new access models. They allow companies to access and use CDR data even if they are not accredited data recipients. Companies can access data through their accredited sponsor (sponsor affiliate model) or using a principal's access (CDR representative model). Non-accredited data recipients can also use CDR data with customers' consent for limited purposes (CDR insight model) such as balance verification, customer income or expense verification, and so on. Alternatively, they can nominate related professionals to access limited CDR data for providing advice to customers (trusted advisor model). Different access models help more participants join the CDR regime to provide customers with new products and service offerings, making CDR more powerful. CDR is being extended to the small and medium enterprise (SME) segment, which will eventually enable SMEs to access a broader range of financial services. These will include business lending, accounting, cash flow forecasting and so on. Banks are increasingly collaborating with fintechs to develop innovative solutions for SMEs. CDR is embarking on a journey toward its advanced stage in Australia. The country is progressing from open banking to open finance and an open economy. Industry boundaries are getting blurred, and instead of working in silos, different sectors are working together to enhance customer experience. Collaboration of financial data with other non-financial open data will lead to creative innovations in products and services. CDR expansion will support innovative business models in the BFSI space and beyond and open up new revenue streams. The Australian Data Strategy has set the vision for becoming a modern data-driven society by 2030, and it is expected that CDR will be a key contributor toward realizing that vision. Expanding CDR across the retail and SME sectors will support data-driven economic growth in Australia in the coming years. Consumer Data Right: Impact of Open Banking in Australia and Beyond Cyber Insurance for Small and Medium Businesses Quality Engineering: Making Digital Banking Reliable Building Digital-only Banks & Creating the Right Digital Experience 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

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Making manufacturing sustainable by design

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parts are restricted and limited, as at that level, the data is mostly aggregated. Scope 1, 2, and 3 impacts are reported with little or no mention to other environmental impact. Understanding the data complexities and other factors that hamper intelligent decision making is the first step. Let's take an example of an automaker that manufactures 450,000 units in a fiscal. This translates to a minimum 2,000 unique derivatives or parts, about 700 materials, (classified as grades of steel, aluminium, various plastics, rubber, glass, and textile) and over 5,000 suppliers requiring multiple modes of transportation and deliveries, both ad hoc and planned. The manufacturer has multiple manufacturing sites across continents with a similar number of varied production lines. Besides these complexities, there is a need to track changes in car composition, battery traceability, recycled content, employee, and community welfare, and greenhouse gas (GHG) emissions too. Data, in these cases, is fragmented across multiple functions giving a point- of- time view at best for a limited area. Multiple sites use multiple systems with each managed independently and with a focus on compliance. There is a distinctive lack of intelligence to drive improvement and efficiencies. The conventional approach to any solution is a form of bottom-up data analysis where we start with a single, defined product that is the subject of the study. The approach, where materials and processes used to manufacture a product are systematically mapped back through the value chain to quantify their environmental impact, is nonetheless a complex task. It requires specialist knowledge and sophisticated software tools. It is usually time-consuming, expensive, and not scalable across an organization, which deals with multiple products. Every department within a manufacturing unit needs visibility into the material – whether it be to source, manufacture, transport, recycle, or simply report on it. With growing regulatory requirements, commitment to Science Based Targets initiative (SBTi) goals, and governments looking to control sustainability footprints, there is a need to bring a cohesive view of enterprise data. This integrated view will allow for scalable and autonomous reporting, proactive monitoring, and reduction of emissions. It will also conduct a what-if analysis into the future with simulations to measure the impact on production balance, stock, procurement, GHG emissions, and carbon intensity. Without that cohesive view, all these advantages are lost to the decision makers. There is a need to look at sustainability with an end-to-end view. And for that, manufacturers need real-time, real-world, consistent, and accurate data to inform decision-making across the value chain. The ability to integrate billions of datapoints from complex value chains to enable short and long-term decision making on delivering net zero goals will transform the very essence of any business model. The key elements to keep in mind are: At a time when trillions of items, billions of consumers, and a large number of suppliers are making relentless efforts to become net zero across marketplaces and value chains, it's vital to use new-age technologies to not just gain a rear-view-mirror perspective of our historic performance, but also to identify and optimize our pathway into the future. TCS Intelligent Urban Exchange™: Building a Road for Seamless Sustainability Journey A Scalable and Dynamic Approach to Product Life Cycle Assessment Enterprise IoT for Energy Transition 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

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Why Formula E innovations will define the future of mobility

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Technology advancements being developed and tested at the racetracks may soon reach the consumer electric vehicle (EV) market. As the title sponsor and technology partner* for the Jaguar TCS Racing Formula E team, TCS knows this first-hand. TCS futurists looked inside a Gen3 Formula E race car to envision the future of mobility in the coming years. It's a bright future in which technologies like digital twins—recently highlighted by Digital Twindex report as transforming the automotive space within three years—will help consumers drive more safely, sustainably, and with more satisfaction. *TCS is the title sponsor and technology partner for the Jaguar TCS Racing Team but does not support the team with the technology highlighted in this infographic. An infographic showcasing how technological advancements for Formula E cars such as autonomous driving, predictive maintenance and collision avoidance will power mobility for the future. These racetrack technologies will soon make their way into the consumer market, making driving safer, more enjoyable, and sustainable. When it comes to sustainability, EV vehicles are already making their mark and more such advanced technologies such wireless EV charging, driver recognition/monitoring and safer, lighter materials for cars will make their way into the market. On the racetrack, advanced technology such as digital twins, sensors, and LiDAR (Light Detection and Ranging) make it possible for Formula E cars to race at top performance without sacrificing driver safety. Potential mechanical issues can be identified in advance using a digital twin of the car to predict which parts may fail and recommend preventative maintenance measures well in advance. At the same time, just as technology is used to predict the car's performance, sensors and data analytics can be used to monitor the driver's health for their safety. These features will be invaluable for everyday consumers, helping to keep their cars functioning well and avoiding common driving problems. When it comes to sustainability, the transition to electric vehicles is already happening across the world. As we can see from Formula E—the world's first net zero motorsport—sustainable driving experience can be achieved without sacrificing automotive performance thanks to EV technology. If this is true on the racetrack, it's doubly true for the highway. While early battery technology necessitated lengthy charging stops, improvements mean that batteries will be lighter, store more energy, and charge much faster. In what could be one of the most compelling EV innovations ever, we may even see a future where EVs can recharge while in motion on the road as power is transmitted wirelessly. Innovations that are fueling the Formula E cars will drive the future of mobility. In addition to a safer and more sustainable driving experience, the future of mobility will be more enjoyable for the driver, with AI and automation making it easier to access driving information and communicate with the wider world. Informed by rapid advancements in motorsports like Formula E, it's clear that the future of mobility will help make the world a better place for everyone. Using data analytics to formulate a successful formula E race strategy When in Rome, win as the Jaguar racers do From Formula E to NYC Marathon–TCS Makes a Mark in the Sports World 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

Why DORA will enhance cybersecurity for EU financial firms

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Further, it will expedite resumption of business-critical operations after a major cyber incident. Compliance with DORA will require financial institutions to change the way they currently operate, with senior management becoming more active stakeholders in enhancing cyber maturity and preparedness. This regulation focusses on incident management and reporting, continuous monitoring of third-party vendors, business continuity, disaster recovery, and regular independent audits from competent professionals. Adherence to DORA requirements will entail continuous monitoring and periodic assessments by financial firms. The proliferation of digital transformation programs has increased cyberattacks globally. At the same time, there has been an inadequate adoption of cybersecurity frameworks. In this scenario, an emphasis on protecting customer trust, increased administrative costs, and a uniform approach for notifying cybersecurity incidents are key drivers for the emergence of DORA. The legislation simplifies existing inconsistencies in cybersecurity deployment and operation and information sharing. In an enterprise, the deployment of new initiatives such as DORA will require senior management support and an adequate budget. The organization will also be required to develop a governance framework and business oversight process to ensure that it reduces any damages due to internal and external cybersecurity threats. Figure 1 illustrates a set of prerequisites for the successful deployment of DORA. An infographic illustrating the prerequisites for implementing DORA in an organization. The successful deployment of DORA will require senior management support, adequate budget allocation, cybersecurity and compliance auditors, established IT governance, and IT and business oversight programs. The primary objectives of any financial institution are operating critical business services and minimizing downtime. Additionally, financial institutions aim at establishing trust among customers, stakeholders, vendors, and business partners. DORA has prescribed a set of goals that are compatible with organizational objectives. These have been depicted in Figure 2. Operational resilience is not achieved in organizations in a short period of time. It requires a dedicated approach to deploying business process documents and standards and implementing adequate IT governance, risk, and compliance (IT GRC) controls. It also mandates monitoring these controls, remediating them, documenting the lessons, and improving business processes over the long term. DORA recommends a single set of rules for financial institutions across the EU. An infographic depicting the goals of the Digital Operational Resilience Act. The regulation aims at enabling minimum downtime of IT infrastructure, limited business disruption, prevention of security incidents and unauthorized access, prevention of fraud, and effective risk management. The senior management of financial institutions must approve the assessment and implementation of DORA. The first set of activities will include examining a list of business processes and policy documents, creating standards and standard operating procedures, and performing gap assessments against DORA's requirements. Figure 3 illustrates the initial document assessment phase and matrix document mapping documents against DORA requirements. An infographic illustrating the mapping of business process document validation and DORA requirements. Firms must examine a list of business processes and policy documents, create standard operating procedures, and perform gap assessments according to DORA requirements. They must create documents to protect ICT systems and develop a

document matrix. In our view, the critical domains to be assessed for DORA are represented in Figure 4. An infographic illustrating the six key domains of DORA. Financial institutions must focus on the key domains of governance, risk management, incident reporting, digital operational resilience testing, third-party risk management, and information sharing. They must deploy cyber hygiene practices to counter cyber threats. Under DORA, financial institutions in the EU will be required to deploy a standardized cybersecurity framework. This will reduce compliance costs and help financial institutions withstand security incidents. It will enhance voluntary sharing of information and intelligence regarding cyber threats between trusted communities of financial institutions within the EU. DORA will be binding in its entirety for all EU member states. However, financial institutions may face challenges in obtaining adequate budget allocations from the executive management to implement the guidelines of the legislation. Financial organizations are facing stringent timelines to introduce the mandatory obligations required by regulators as part of their DORA-preparedness. In this scenario, they must replace manual assessments with an automated approach to bring consistent methodology, resilience, and a quick recovery from cyber threats. Implementing DORA across various branches of financial entities using a centralized approach will be challenging. Once the gap assessment is completed, financial institutions must mitigate the identified gaps and ensure timely completion of remediation and mitigating measures within the adoption period. Institutions identified by European authorities must undergo advanced penetration testing by competent cybersecurity staff. During this exercise, mimicking real-life threat actors attacking critical services on an active production operational environment is a major requirement of DORA. Developed countries and a major part of developing nations have defined their own cyber resilience frameworks. They have taken this action to protect critical infrastructure and enable financial service firms to detect and respond to emerging cybersecurity threats. DORA requirements will provide additional guidance to other countries for enhancing their cyber resilience capabilities. It will help them protect information and communication technology (ICT) systems and enhance the trust of customers in financial services. It is essential for financial institutions in the EU to continuously look out for any amendments to DORA and implement them. DORA is not a one-time engagement. It will be an ongoing exercise and will require periodic review, annual testing, continuous monitoring, and continuous improvement on the part of financial services firms. The Making of a Cyber Resilient Organization Cyber Resilience: Crucial Role in Next-gen Digital Banking 7 Key Factors to Build Efficient Enterprise-wide Cyber Resilience Enhance cyber resilience with zero trust security 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 =====================

Ride the learning curve with effective cloud implementation

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advantage. One way of thinking about the cloud is 'What does the experience of the implementation partner do for your costs?' There are, we think, two answers to the question. You can model the learning that companies have with cloud projects. The results are revealing. Consider an example involving the cost of delivery, with three rates of learning on implementing projects: a one, two and five percent reduction in cost per project. After ten projects, the benefit can be significant, with up to a 40% reduction in project costs. It's unlikely that individual clients will have had the volume of experience that consultancies have obtained. An infographic showing how companies can reduce delivery costs by learning from their experience with other cloud projects. The visual shows the base cost of delivery in a project, with three different rates of learning experience: one per cent, two percent, and five per cent. After 10 projects, the cost for the same project with a one percent improvement in learning is 90.4 percent. With a two percent improvement, the cost goes down to 81.7 percent. For a five percent improvement, the cost goes down to 59.9 percent. Experience with Azure is not just about driving down costs. It's also about improving processes. Plus, it is key to help meet the business goals and purpose of the company. Azure can enable the changing of business models and increased value added, the introduction of new marketing approaches, tighter integration with suppliers and retailers, and faster implementation times. The following chart summarizes the Capabilities Maturity Model stages used for guiding improvement in performance and processes. TCS helps its customers improve its Azure maturity. A chart showing the five stages of cloud maturity of any organization. Level 1: Initial Level 2: Managed Level 3: Defined Level 4: Quantitatively managed Level 5: Optimizing These five stages describe the Capabilities Maturity Model used for guiding improvement in the performance and processes of an organization. Five industry examples that illustrate the type of benefits Azure can provide. Pharma: Clinical data collection and analysis is a critical part of the drug approval process. A pharma vendor wanted to create an AI-based analytical platform. It used Microsoft's Intelligent Data Platform with data storage in Azure Data Lake. Other tools included Azure Synapse Analytics, Azure Databricks and Data Factory, Azure Active Directory, Purview, Azure Kubernetes Service, and Power BI visualization. The overall system reduced manual intervention by 90%. More importantly, it reduced medical reviewer time by 90%. One of the most exciting results was that the system could be reapplied in future clinical trials. And it reduced drug development time by a year, leading to a multi-billion-dollar benefit. "Now that we have [our AI solution], I can imagine that our fragmented infrastructure might organically merge into a cohesive technology platform. This means we can focus on complex data rather than on complex technology," said the company's Vice President, Head of Clinical Data Sciences and Analytics. Manufacturing: Large manufacturers can also benefit from Azure. A company with over 250 factories suffered from poor real-time production data, bad diagnostics analytics, and trend analysis. Inadequate failure analysis meant poor capacity utilization and inefficient shift data handovers. The solution involved the Generic Digital Operating System. It provided a more digitized operation, more use of IoT, cloud and augmented reality. Microsoft solutions included Microsoft IoT Runtime, OPC Publisher, Edge SQL and multiple modules from the Microsoft Edge/HCI stack. The benefits included data processing based upon criticality and latency, an abstraction

layer that integrated older standards, an overall information modeling approach, integration with a corporate data lake, both real-time and batch processing for better decision making, support for advanced analytics, modelling and real time inferencing. Retail: A large retail client with over 8,000 stores completed almost a billion transactions a year. On average, it services eight million customers per day. Its migration to Azure enabled it to manage 40,000 transactions per second. TCS helped this client improve its data management by enabling it to manage data across multiple stakeholders, customers, and suppliers. The client's previous siloed approach separated the technologies of storage, processing, and delivery. It now uses Azure Databricks and Azure Synapse Analytics, Azured Data Lake Storage and Azure SQL Database. It uses Azure Cosmo DB for managing microservices that have sped up dispensation and the data warehouse. The net result is faster transactions that can support the internal staff at retailers and service centers in minutes, not days. Democratizing of the business analytics via dashboards and Power BI also makes data available when needed throughout the organization. This type of capability is important for its current and growing role of being an advisor to customers and stakeholders. Real estate: Often, legacy code affects business success. A realty major replaced its old systems with a move to Azure Event Grid. This new capability avoided loss of customers, upped repurchase rates, and minimized software delays and feature launches. With more than 30,000 customers, the company has experienced major and positive outcomes. Three highlights include: Financial services: A global financial services client migrated more than 1,000 applications to the Azure environment in just six months. The benefits were significant: TCS is frequently a launch partner for new Microsoft product launches. In addition, most TCS off-the-shelf and framework solutions work with Microsoft Cloud. "We are proud to once again be recognized as Microsoft Partner of the Year as the industry-led global systems integrator of choice and leading transformation partner," said Siva Ganesan, Global Head, Microsoft Business Unit (MBU), TCS. "Now into our third year, our dedicated MBU delivers innovation through the combined forces of TCS' industry-aligned consulting experience and Microsoft's leading technology to build greater futures through innovation, purpose, and collective knowledge." Cloud Innovation, Sovereign Cloud, and More – 5 Cloud Trends for 2023 TCS Efficient Cloud Operations with AWS cloud Solutions Tracking Cloud Technologies-driven Business Innovation Are you Wasting your Cloud Spending? 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 regimen for enterprise fitness in the AI era

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the world's great coaches, and senior executives from leading companies. We'll bring new relevance—and possibilities—to the concept of enterprise fitness. Below are just a few of this year's highlights. Themed Embracing Enterprise Fitness – Race to the Future, the 2023 TCS Summit North America will bring together business leaders, notable headline speakers, and authoritative sources of new ideas and trends to explore regimens for the fit enterprise. Embracing enterprise fitness – race to the future Embracing enterprise fitness – race to the future The rise of AI is already dramatically impacting our lives, from the day-to-day to the geopolitics that play out on a global stage. Join us as Nicholas Thompson, The Atlantic CEO and technology expert, interviews scholars from the Brookings Institution's AI and Emerging Technology Initiative. They will discuss AI's potential to increase productivity and lift people out of poverty and its potential to exacerbate cyberattacks, scams, disinformation, bias, and surveillance. The Brookings experts will unravel AI's implications for nations, governments, and the people they serve. They'll also share their insights and ideas for policymakers and business leaders. While most people are just beginning to grapple with the implications of AI, academia has been wrestling with the impacts of this technology for decades. In this moderated conversation, experts from TCS' academic partners will discuss the policy, use cases, and ethics required to build a responsible future with AI. We'll hear from Dr. Daniela Rus, Director of the Computer Science and Artificial Intelligence Laboratory at the Massachusetts Institute of Technology; Ramayya Krishnan, Dean of the Heinz College of Information Systems and Public Policy at Carnegie Mellon University; and TCS CTO Dr. Harrick Vin. If there's one person best-positioned to teach us about strength, endurance, and adaptability—not to mention leadership and strategy—it is Mike Krzyzewski, better known as Coach K. He is a Hall of Fame basketball coach, a five-time national champion at Duke, and a three-time gold medalist as head coach of the US Men's National Team. At this year's TCS Summit, he'll translate the insights, inspirations, and proven principles of his legendary career into clear guidelines for achieving not just fitness, but greatness. Coach K will detail the keys to his success—from motivational techniques to the vital impact of trust and communication—and show how they can be applied to every level of our personal and professional endeavors. If that's not enough, keynote speakers Tata Group Chairman N. Chandrasekaran, TCS CEO and MD K. Krithivasan, Allianz Life Insurance Company of North America President and CEO Jasmine Jirele, and panel participants from leading companies like Boeing, The Home Depot, Honeywell, Humana, PNC, Sony Pictures Entertainment, and USAA will share their secrets for building strength, endurance, and adaptability. We also have a surprise guest planned for our special Gala Dinner on September 12. Safe travels and we're excited to see you at TCS Summit! The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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

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It's time to embrace enterprise fitness

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Businesses must invest and innovate to ensure they are resilient to the challenges of tomorrow and are ready to take advantage of the many opportunities on the horizon. Based on recent CxO surveys, the TCS Thought Leadership Institute has prepared a report which identifies what it means for a business to embrace enterprise fitness in today's world, similar to how athletes train. Download the full report here Make no mistake— enterprise fitness is not just another business metaphor. It's a game plan for success. With 89% of the C-suite saying a data-driven foundation is the most essential enabler to achieve business priorities, and 73% of businesses reporting they are not fully cloud mature, there is a clear mandate for businesses to get more competitive and fit. TCS understands the power of fitness to change lives. As the title sponsor and technology consulting partner for the world's top marathons, we believe in empowering people to achieve big personal goals and equipping businesses to embrace enterprise fitness. TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Role of AI in HRMS Industry Improving content accessibility for people with disabilities Five-point Strategy for Efficient Cloud Operations =======================

How cloud can boost companies' social and governance scores

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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. Learn how enterprises can leverage cloud to measure and improve social and governance metrics and overcome environment, social and governance (ESG) challenges. Swarnabha Seth Lead Solution Architect, AWS Business Unit, TCS You have these already downloaded We have sent you a copy of the report to your email again. Social and governance data need greater focus. When it comes to environmental, social and governance (ESG) and driving the ESG agenda with data-driven actions, the focus has so far been more on the environmental aspects of sustainability. The reason lies in the lack of implementation of technology to effectively capture and monitor organizations' social and governance initiatives for holistic sustainability. While organizations are reporting on some social and governance aspects, they are often for compliance. A few examples include gender equality in employment, equal pay for equal work, prohibition of child labor, and safety of workers. Meanwhile, employee satisfaction, racial discrimination, biases, and things like urban, rural, and tribal welfare are being loosely measured and not adequately improved upon due to the lack of insights and benchmarking. In this context, cloud solutions can be instrumental in enabling more accurate measurement of social and governance scores. They can help organizations track improvements, develop complex predictive models, and generate insights to effectively manage social and governance aspects of ESG. Not just that, they can help organizations meet their commitments to society and become more responsible corporate citizens. Gain insights into four social priorities. As responsible corporate citizens, many organizations have committed to building a better, more sustainable, and a more inclusive world. By leveraging cloud capabilities, organizations can seamlessly assimilate huge volumes of dynamic data and generate real-time insights to accelerate progress, or course correct if required, across four social priorities: Employee management: Organizations can collect, analyze, and receive alerts on real-time social data. Coupled with predictive and analytics capabilities on cloud, societal discriminations—including those done to employees or by them—can be tracked. Think of biases in the quality of services based on location, ethnicity, or economic status. Cloud-based predictive and analytics solutions also allow organizations to be forewarned about possible discrimination through patterns observed in complaints or feedback. Also, advanced video analytics capabilities can monitor working standards and automatically report non-compliance. Product or service ownership: It is important to track the health and environmental impact of products and services. Advanced analytics of data streamed from varied sources makes this possible. Cloud offers real-time analytics capabilities across different data types along with the easy provision of ready-made AI models for sentiment analysis that helps ensure ethical marketing. Stakeholder management: Companies must ensure a partner ecosystem where all participants are committed to making a positive impact to society. Partnership ecosystems can be validated against desirable social standards with advanced capabilities such as natural language processing (NLP), video analytics, and speech analytics that are otherwise costly compute-intensive

activities but can be made easily available on the cloud. Additionally, business-as-usual interactions with stakeholders can be evaluated for ethical standards and compliance using artificial intelligence (AI) and data analytics on the cloud. Corporate social responsibility (CSR): This involves carrying out various social events and campaigns that include conducting social awareness drives and providing educational and financial support for the needy. Cloud enables seamless and effective monitoring of these activities through advanced systems such as satellite feeds and video-based solutions to reach remote areas. Governance is the cornerstone that drives all the other aspects of sustainability. Realizing this, companies today are putting a premium on robust governance, which includes both financial and operational governance: Financial governance: Deploy real-time monitoring of all financial transactions and AI-based anomaly detection over and above the rule-based assessment. Cloud makes available ready-to-use AI models and capabilities that can be leveraged for fraud detection and possible misappropriation. Operational governance: Enhance monitoring of operations and event-driven architecture that can address non-compliance on a real-time basis. This, thereby, allows us to take actions that might otherwise be delayed and lead to suboptimal governance and inefficiency. Cloud enables the creation of detailed dashboards with dynamic data representation capabilities along with intricate management of alerts. Accelerate your journey to becoming truly sustainable with cloud. Organizations need to measure the current state and identify areas for improvement in social and governance aspects. The following figure shows the key metrics that need to be monitored for effective brand building, improved budget utilization, and enhanced sensitivity toward social and governance aspects: A figure showing key social and governance metrics companies should monitor. The critical metrics towards social aspects include the percentage of employees volunteering for social initiatives, diversity in the workforce and supply ecosystem, rate of profit/revenue for social causes, and social enterprise feedback. The critical metrics towards governance aspects are the number of deviations from rules/regulations, percentage of data with complete lineage/transparency, number of incidents, risk management, and ESG compliance. Leading cloud providers, while providing infrastructure capabilities to address social and governance concerns, are also making real-time social and governance data available. This data can help organizations improve and benchmark social and governance scores. Hence, cloud technologies with its vast offerings, on-demand computing, and advanced data processing are proving to be the right enabler for building truly sustainable organizations. TCS Launches ESG Integration Solution on AWS TCS ESG Integration ESG Integration into Credit Assessments The growing importance of ESG 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 =====================

Adopting MLOps to service ML technical debt

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ML technical debt include prediction bias, correction cascades, undeclared consumers, unstable data dependencies, legacy features, configuration debt and so on. Continually evolving market conditions force manufacturing organizations to move faster and thereby accumulate ML technical debt, which elevates business risks and escalates costs. For example, manufacturing organizations are routinely using machine learning methods to proactively detect warranty frauds. However, prediction bias can make warranty fraud detection models ineffective when the dealers and service providers change their behaviours. As the input data (warranty claims) drifts away from its original model training profile, the model can no longer effectively flag potential frauds. Similarly, if a model developed to approve vehicle lease applications uses a training dataset that underrepresents a certain demographic group, the model may show a prediction bias toward the lease applications received from the overlooked demographic group. This can result in loss of potential sales while also making the organization vulnerable to litigations. Likewise, when pricing the service contract for a new vehicle, it is not uncommon to use the ML model of a similar existing vehicle with some corrections applied to its output. This results in a correction cascade, which means if the original model is updated, it will make the service contract pricing of new vehicle sub-optimal, resulting either in loss of sale or erosion of margin. Data-driven development implies that ML models are only as good as the initial data they were trained on. As the actual data profile starts drifting away from the training data, models start to deteriorate. Sometimes, the data profile does not change but the business realities change in such a subtle manner that models do not accurately depict the current state of the world. Many ML algorithms are stochastic, which means that these algorithms may not produce the same model parameters every time they are retrained, and the model inferences may vary as well. These characteristics of data-driven development and stochastic algorithms make it difficult to spot ML technical debt in comparison to the software technical debt. Historically, it has been difficult to address the ML technical debt. However, with the recent advancements in AI engineering and machine learning operations (MLOps), it is now possible to control and service this debt to a great extent. For example, correction cascades and undeclared consumers can be kept in control with the model versioning feature of MLOps. Model versioning makes it possible to update the base model without breaking the dependent models and consumer applications as the latter two will continue to use the previous version of the base model if it is available in the model registry. Even though MLOps does not solve the issues of correction cascades and undeclared consumers completely, it still ensures that unwanted dependencies do not delay (or stop) new releases of the base model. Similarly, unstable data dependencies can be dealt with the dataset versioning feature of MLOps. Furthermore, almost every MLOps framework provides the calculation of feature importance that helps in weeding out unnecessary legacy features. MLOps solutions also provide extensive capabilities to slice and dice the prediction sets to detect prediction bias and ensure model fairness. MLOps promotes reproducible ML pipelines as code that ensures continuous integration and continuous delivery (CI-/CD) of ML pipelines, potentially solving the problem of configuration mismatch. Resolving the ML technical debt is paramount for continued value creation using machine learning. Applying machine learning without paying attention to ML technical debt can cause inaccurate and

biased predictions that not only erodes competitive edge but also risks organizational reputation. MLOps solutions are relatively new in the market but they are rapidly maturing, and new capabilities are being added continuously. An appropriate MLOps strategy can make it possible for manufacturing organizations to realize the true potential of machine learning. Industrializing ML to transform manufacturing businesses Future-Ready Manufacturing: Partnering in your journey to a sustainable manufacturing enterprise Avery Dennison explores new digital strategies with TCS Generative AI and its Impact on Marketing 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 =====================

Building a resilient sales and operations planning system

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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. Sriram Kannan Senior Business Consultant, Supply Chain, Manufacturing, TCS You have these already downloaded We have sent you a copy of the report to your email again. We live in a world, which is witnessing volatility, uncertainty, complexity, and ambiguity (VUCA) on a continuous basis. It is therefore imperative for businesses to rethink their processes, particularly the ones that have a bearing on customer engagement. Inputs related to sales plan, production capacity, material planning, and logistics are part of routine sales and operations planning (S&OP) activities. Irrespective of the industry, be it chemical, automotive, or FMCG, most of the companies' S&OP framework covers these aspects in detail. We discuss a few other areas of S&OP such as warehousing, workforce and HR, finance, and regulations which have started gaining importance. Evaluating their real impact on the business will go a long way in ensuring a stable and effective planning approach. S&OP has expanded to improve business clarity for stakeholders and consumers. It has evolved from the days of standalone material resource planning (MRP) to MRP I, MRP II, and now, the integrated planning approach. Adopting the newer aspects in the S&OP process will make a business more agile and focused. In the chemical industry, for example, most of the key input materials are linked to the commodities basket such as crude oil and its derivatives. Most of these are again tracked against indices, which off late have been relatively volatile. Under-recoveries in crude oil derivatives can impact supply chain efficiencies negatively. Through innovative warehousing options like modular bulk warehousing, pre-mix or pre-blends of oil derivatives, and portable blending sub-unit within warehouses, companies can drive faster cost recoveries and inventory optimization.   It is imperative for manufacturers to understand how these factors will play out in the future. Warehousing: While sales and production planning covers all the requirements for the forecast period, the need for warehousing – when accounted for at the beginning of planning cycle – goes a long way in debottlenecking key operational areas such as: Warehouses, which play the role of low-scale blending setups, can help in last-mile differentiation by demand sensing and fulfillment at short intervals leading to superior delivery performance and reduction in product obsolescence. Workforce and HR: The production team and sometimes the logistics team get hit by lack of key human resources at the start of the production cycle. This problem can be solved if workforce requirements are shared and made available as part of the S&OP cycle itself. This addresses the concerns around: In the chemical industry, for example, technology advancements such as remote monitoring, control, and correction have been in place for many years to reduce errors that lead to product loss (incorrect dosing, wrong blending), structural degradation (gauge failure, valve damage), and financial losses. With a focused S&OP process, key talents can be identified to play a more proactive and de-risking role there. Shop floor talents, who can react faster to change-over requirements and are receptive to change-in process and formulation, can be groomed to mid-level managerial roles with proper career guidance. Finance: Manufacturers should focus on improving the visibility of key finance areas such as working capital allocation and asset turnover. Those are key to ensuring consistent business orders, which

include better margins, better value, and volumes are executed on a regular basis. Laggard-type orders, orders which usually enter the planning cycle after defined cut-off dates regularly, are held up on the other hand for accountability with the concerned team and removed from the funnel thus releasing useful capacity and resources. That helps the finance team to go for quick-win opportunities with focused S&OP actions by driving pricing flexibility for key end products. This can be done by using favourable positions such as drop in crude oil prices, distress sales-driven input feedstock availability from key vendors, and product mix-driven additional production resource availability. For example, companies can buy input materials – either in bulk or in contracts for fixed period – based on forecast plan for 6 months. This can help make alternate pre-blend grades with approved formulation inputs, to generate operational flexibility for key process during peak production periods. Regulations: Regulatory and legal changes play a critical role in how the plan captures these changes and in what frequency and manner. The reasons are: To minimize any impact on the brand or corporate entity, that the business represents. Planning functions should ensure these additional but critical factors are shared at the start of each S&OP cycle. It would also need the nod from the concerned functional and business heads. This would ensure that the exercise has ownership across the business. Workspace availability for expanding product portfolio continues to be challenging for auto ancillary workers. Using this expanded S&OP model, automakers can opt for short-term lease of warehouses that can mitigate space availability issues and improve operational efficiencies. Steps can also be taken to standardize these inputs as part of the ISO Business Manuals of each function. Effectiveness of such inputs can be taken up for review once every quarter in the ISO systems driven management review meeting. Digital supply chain: Enabling transformation and revenue growth Downstream Demand Inference & its Key Role in Demand Forecasting ERP Integration Roadmap to Deliver on the Desired Synergies 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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Four enablers for future-ready business operations

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understand what's on their mind—their top strategic focus areas, key business operations enablers, and what they think are the biggest factors to break down organizational silos. We live in a world where technology is core to business. And so, we explored the role of AI, automation, and cognitive technologies in their operations model now and for the future; dependencies for successful technology deployments; and what technologies they are betting on. TCS' survey of C-level executives of large enterprises in 10 industry sectors sought to understand what's on their minds—their top strategic focus areas, key business operations enablers, plans to break down organizational silos, the current and future role of AI, successful technology deployments, and future planned investments. I am excited to share that our survey uncovers four key enablers for a more resilient, integrated, and intelligent approach to business operations. It shows that companies can establish future-ready operations by taking a customized approach that builds on a digital and data-driven foundation, technology harmonization, a business outcome focus, and integrated operations. This approach allows them to become more agile, innovative, and cost-effective while driving improved customer engagement and higher profit margins at the same time.   A figure showing the ranking percentage of key business enablers, with the digital and data-driven foundation ranking first at 89%, harmonization of technology ranking second at 88%, focus on business outcome placing third at 86%, and integrated operations ranking fourth at 83%. When asked about the key business operations enabler to achieve their top strategic focus areas, it's interesting that as many as 89% of the respondents ranked digital and data-driven foundation most important, while 88% said technology harmonization and modernization is a must. Meanwhile, 86% said business outcome focus is key and 83% said integrated operations is essential. Organizations with higher-than-average growth and revenue performance have embraced many of these key enablers. We weren't surprised that 'Pacesetters' have embraced many of the key enablers of future-ready organizations that emerged from the survey findings. Pacesetters are organizations with higher-than-average growth and revenue performance from 2018-2022. So, what are they doing that's giving them a competitive edge and which others need to catch up on? In the next blog, we will look at Pacesetters' behaviors and explore what they are doing differently from other organizations and how they could see even stronger business performance with the four key enablers. Get unique insights into cognitive business operations here. Interested to know more about TCS Cognitive Business Operations? Visit this page.   Digital supply chain: Enabling transformation and revenue growth Downstream Demand Inference & its Key Role in Demand Forecasting ERP Integration Roadmap to Deliver on the Desired Synergies 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 ======================

Embracing circularity in the chemicals process industry

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recycling system and developing new product designs that facilitate disassembly and reuse. To realize the circular economy vision, process manufacturing companies will need to focus on the following three areas in particular: Raw material dependence: The industry relies heavily on finite, non-renewable resources, such as fossil fuels and minerals. Shifting to renewable or bio-based feedstocks will require significant investment in research, technology, and supply chain development. Complex supply chains: Intricate supply chains of the chemical process manufacturing companies make it challenging to track and manage materials throughout their lifecycle. Developing efficient collection, sorting, and recycling systems requires collaboration among various stakeholders. Chemical complexity: The diversity and complexity of chemical products make recycling and recovery difficult. Designing products for disassembly and reuse, while maintaining performance and safety standards, is a significant challenge. Additionally, chemical companies must address the concerns related to product quality and safety when using recycled materials. Rigorous testing, certification, and standardization can help ensure that recycled inputs meet required standards. The transition to a circular economy model holds the promise of reduced resource consumption, minimized waste, and improved environmental outcomes. Here is how chemical process companies will be able to improve resource utilization and efficiency: Reduced raw material dependency: Circular economy principles focus on minimizing raw material consumption by emphasizing on the reuse and recycling of resources. In the chemical industry, this means shifting from a linear take-make-dispose model to one that involves the recovery and regeneration of materials. This will enable companies to reduce their dependency on costly primary raw materials by recycling and reusing them. This will not only lower extraction costs but also reduce the financial risks associated with the price volatility of raw materials. Increased resource efficiency: Circular economy practices encourage the optimization of resource used throughout the production process. By implementing cleaner production techniques, efficient manufacturing processes, and recycling initiatives, the chemical industry can minimize waste generation and improve resource efficiency. This reduces the need for excessive extraction, lowers energy consumption, and decreases production costs. Using secondary raw materials instead of primary raw materials can result in 20-90% energy savings and considerable water savings. Moreover, using resources efficiently will allow companies to improve market competitiveness and overall profitability. Circular economy models will help companies create new revenue streams. Besides reducing dependency on raw material and driving sustainable use of waste and by-products, chemical process companies will benefit from: Value extraction from waste and by-products: In a circular economy, waste and by-products are seen as potential resources. The chemical industry can extract value from such materials, that were previously discarded, by implementing innovative technologies and processes. These waste streams can be transformed into valuable inputs for other industries or even for internal use. This not only reduces disposal costs but also creates new revenue streams and reduces the financial burden associated with waste management. For example, carbon renewable technology allows waste to be recycled, which would otherwise go to landfills, into sustainable fiber. This is produced from a combination of recycled waste content (40% mass balance approach), recycled cellulose (20%), and sustainably harvested wood pulp

(40%). The result is a high-quality, sustainable fiber product made from 60% recycled content. Product life extension and servitization: Circular economy strategies emphasize on extending the lifespan of products through repair, refurbishment, and remanufacturing. In the chemical industry, this can be applied to products such as chemical containers, equipment, and machinery. The industry can generate additional revenue and reduce the financial burden on customers by offering maintenance and repair services as well as product leasing or rental options. For example, leasing chemicals instead of selling them to extend their use. Take a solvent, for example. A chemical provider could apply it to a company's manufacturing process, then recapture and clean it for use by another company. This can be done by using cradle to cradle approach where solvents are designed and managed in a way that enables them to be reused or recycled after the current life cycle. This shift from a product-focused approach to a service-oriented model can also help the industry overcome cost barriers associated with capital-intensive investments. This transition may not happen overnight. Adopting circularity in the system will lower pollution and drive innovation, leading to newer technologies for further sustainable production. Innovative recycling methods will recover precious materials, fostering resource efficiency. Collaboration between industries will spur eco-friendly supply chains, cutting down on raw material consumption. Another important aspect is regulatory support. Governments and regulatory bodies are increasingly recognizing the importance of circular economy principles and are implementing supportive policies and regulations. These measures include incentives for resource-efficient practices, tax benefits for recycling and reusing materials, and stricter regulations on waste disposal. Such support reduces the financial burden on the chemical industry by creating a favorable business environment, incentivizing sustainable practices, and ensuring a level playing field. We believe regulations will continue evolve to incentivize chemical companies to adopt circular economy practices, preparing the landscape for a greener future. Sustainable by Design Connected labs: Charting a neural future for the chemical industry Leveraging Digital Transformation to Realize a Circular Economy Embracing blockchain technology in the paper and packaging industry 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 =====================

Integrating AI and ML into SDTM transformations

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Robust MDR framework MDR using AI and ML AI implementation Conclusion 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. Shailesh Kumar 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. Shailesh Kumar Functional Consultant, TCS ADD™ Metadata Repository You have these already downloaded We have sent you a copy of the report to your email again. At the different stages of a clinical trial, proper collection, management, and analysis of data are paramount. The Study Data Tabulation Model (SDTM) is quintessential for organizing and presenting clinical trial data. As data complexities grow with the vast amounts of unstructured collected data and regulatory requirements evolve, the manual process of transforming source data into SDTM format becomes increasingly cumbersome. However, a powerful combination of Artificial Intelligence (AI), Machine Learning (ML), and metadata repositories can revolutionize this process, making SDTM transformation more efficient, accurate, and adaptable than ever before. This blog post explores the use of metadata repositories in SDTM transformation, metadata setup, and how AI and ML can automate metadata repository setup and foster SDTM transformation metadata setup for a study. To effectively automate the SDTM transformation process using AI and ML, a robust metadata repository (MDR) framework is key. This framework serves as a centralized hub that captures and manages metadata related to clinical studies, source data, SDTM domain metadata, SDTM mapping specifications, and transformation rules. Moreover, it enhances collaboration and consistency among team members by providing a single source of truth for data transformations. It provides inheritability and scalability for future study creation. It maintains data integrity and

traceability, streamlining the validation process, and expediting regulatory submission. The MDR ensures transparency and allows for efficient management of changes, ultimately leading to an accurate and compliant SDTM dataset. Let us understand the crucial steps in leveraging AI and ML to create efficient MDRs In ML algorithms, historical transformation rules will be trained and applied automatically to new studies. These algorithms can identify patterns in the source data and generate transformation rules for variables with similar characteristics. Automating SDTM transformations using AI and ML through a robust metadata repository framework brings significant benefits to the field of clinical studies. By leveraging AI techniques such as NLP, pattern recognition, and data quality checks, organizations can streamline the SDTM transformation process, improve accuracy, and ensure regulatory compliance. Acknowledgment Charusheela Thakur, a Domain Consultant for TCS ADD™ Metadata Repository, contributed to this article. She has over two decades of experience in the pharma industry. Accelerating speed to market using Metadata Repository (MDR) Rapid Standardization in Clinical Trials with Metadata Repository (MDR) New Version of TCS' MRT Platform to Help Pharma Cos Digitally Transform Clinical Studies Empowering clinical data management through emerging technologies 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 to elevate the security of central bank digital currency

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intermediaries' digital wallets stored on their mobile phones. So, when making payments for purchased items, the customer can simply send the digital currency to the shop's digital wallet. Transactions can also be person-to-person (P2P) and person-to-merchant (P2M), where payments to merchants can be made using QR codes displayed at merchant locations. In an increasingly interconnected world, CBDCs offer a step towards a digital economy by providing easy access to digital currency for underserved populations while also reinforcing the resilience of financial systems. It can offer stability and security, reducing reliance on less stable cryptocurrencies and enabling swift central bank support during economic crises. CBDCs' transparency and traceability can combat fraud and illicit activities, fortifying the integrity of the financial system. Enterprises need to understand the cybersecurity and privacy challenges of CBDC. Enterprises need to be on guard when transferring CBDC tokens, as they can be vulnerable to hacking, cyberattacks, counterfeiting, and the double-spending of tokens. Below are key cybersecurity and privacy challenges in CBDCs that enterprises need to overcome: Fraud and counterfeiting: These involve illicit activities aimed at deceiving or undermining the integrity of the digital currency system. The result can be significant financial losses to customers and central banks. Encryption and authentication techniques prevent counterfeiting. Cyberattacks: This includes phishing, malware, ransomware, distributed denial-of-service (DDoS) attacks, and more. Implementing strong security measures such as encryption, multi-factor authentication, regular audits, and rapid response plans ensure the safety and integrity of CBDC systems. Money laundering: This involves the use of digital currency to conceal the source of illegal funds. Blockchain and advanced transaction monitoring systems enable real-time tracking of funds, making it harder for illicit funds to be hidden. Integrating user identity verification and transaction reporting into CBDC systems can detect and prevent suspicious activities while complying with anti-money laundering (AML) regulations. Privacy and anonymity: Implementation of a combination of blind and ring signatures ensures that CBDC transactions remain anonymous, while also preventing double-spending. Offline transactions: To prevent attackers from intercepting and accessing offline CBDC transactions on users' devices, banks need to use multi-signature protocols. This requires seeking approval from multiple parties before processing such transactions and implementing strong encryption controls.   Securing CBDC transactions is paramount for the future of finance. It necessitates cutting-edge cybersecurity technology, multi-layered security measures, and user education to ensure safe practices. Collaboration among stakeholders, robust regulatory frameworks, and a balance between privacy and transparency are essential. Contingency plans and global cooperation can bolster resilience, while ethical considerations guide responsible development. Continuous research and development efforts remain vital to stay ahead of emerging threats, ensuring CBDCs remain a secure cornerstone of the digital economy. Lead with cyber confidence TCS Risk and Cybersecurity Study Protect your data with TCS' data security services How modernizing cybersecurity empowers business growth 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

Five ways to transform supply chain with metaverse

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their supply chains. It is built on technologies like virtual reality (VR), augmented reality (AR), artificial intelligence (AI), and internet of things (IoT). That will infuse neural traits in existing processes and systems, making those more connected, intelligent, and resilient. By developing a virtual replica of the existing world, stakeholders can interact, collaborate, and simulate the supply chain operations to take informed and timely decisions. That will help build a transparent and intelligent supply chain for resilient operations. Metaverse, though not a new concept, has witnessed some phenomenal growth since the pandemic. According to a report by US research firm Gartner, quarter of the world population will spend at least one hour per day on metaverse by 2026. Such popularity is expected to push up its market size to about $824 billion by 2030, a CAGR of 39% from 2022. Industries are looking to explore the various facets of the metaverse in more details in the future, considering the opportunities it is likely to offer. The metaverse can positively impact supply chain functions of the process industry in the following ways: Collaboration with partners - Strengthening relationship and improving transparency with suppliers and buyers are key priorities for top executives in supply chain risk mitigation strategy. Suppliers and buyers in process manufacturing are more diverse and spread globally. To remove geographical constraints in the future, metaverse will enable every entity in a supply chain to have a digital twin of their facilities, where stakeholders can take a virtual tour. It will help buyers and sellers gain insight into each other's operations excellence, environmental stewardship, and capacity to be adaptive towards market fluctuations. It will also enable the avatars of buyers and sellers to have real time interactions to negotiate contracts, build trust, and work collaboratively for cost effectiveness and margin improvements in the overall supply chain. Facility and process optimization - Metaverse will allow plant operators, managers, and planners to have an immersive experience of layout of facilities before a single brick is placed on the ground. Simulation can be utilized to understand movement of goods and resource inside facilities, train the workforce like operating a forklift in warehouse, and work in hazardous conditions for efficient operations. Critical processes and machines can be tested to work in peak loading virtually. Their performances can then be analyzed to predict breakdowns and operate in optimum conditions to reduce waste and energy consumption. Optimizing logistics - Transportation and logistics function have always been crucial and complex activities to manage in supply chains. 3D models of logistics ecosystem will assist in simulating real-life traffic, weather, and road conditions providing visibility of total lead time, making cognitive decisions to select correct mode and optimum route for shipments for sustainable operations. Algorithms of autonomous vehicles can be tested in virtual environment without real world risk thus acting as a catalyst to accelerate deployment of self-driving vehicles in the transportation industry. Besides smoother and precise operations, metaverse can create a better understanding of customer behavior and preferences that would help in creating personalized customer experiences and more tailored offerings. Effective planning - In this volatile, uncertain, complex, ambiguous (VUCA) world, it is impossible to have an accurate demand forecast. The supply chains have to be resilient enough to respond to any disruptions caused by external events. By simulating real world situations like pandemic, war, or natural disasters on 3D models of supply chain, managers can identify weak links in value chain and avoid

disruptions in future. Enhanced customer experience - Consumer preference is changing rapidly, especially in the chemical industry. That is pushing manufacturers to innovate at pace at a time when consumers are looking for more ecofriendly products. Metaverse will provide flexibility to collaborate with various entities in the product development ecosystem like R&D, customer, academia, and startups to co-innovate and develop products in the virtual space, receive feedbacks, and reduce innovation cycle time. Metaverse is evolving and will certainly unlock the traits of neural manufacturing. It will provide immersive experience to users and ability to perform simulations using real world like scenarios for processes and products to manage them proactively and efficiently. Gartner also estimates that by 2026, 30% of the organizations in the world will have products and services ready for metaverse.   To capitalize on this potential, organizations need to start assessing what exactly metaverse holds for them, what will be its return on investment (ROI) and then judiciously bridge the technology and cultural gaps to embrace the transformation and enter the phygital universe. Neural Manufacturing™ Industry 4.0 in Manufacturing to Transform Supply Chain Operations Building Future-proof Supply Chains in Auto & Industrial Manufacturing Redefine customer experience in 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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Innovation, sustainability are weaving new fashion statement

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5 MINS READ Surabhi Dey Senior Research Analyst, Corporate Marketing Research and Advisory, TCS You have these already downloaded We have sent you a copy of the report to your email again. The fashion industry is getting modern. It is modernizing its entire value chain—from conceptualization to designing, to production and retailing—with innovation-led initiatives to achieve environmental, social, and governance (ESG) goals. Before the 20th century, tailors handcrafted customized apparels. With time, industrial innovations paved the way for mass production, which, in turn, necessitated the creation and evolution of value chain. The various value chain components started spreading across the world when globalization started. Now, for example, a European fashion house sources fabric from China, manufactures clothes in Bangladesh, enhances aesthetics in Italy, and ships them to a warehouse in France for distribution to retail outlets internationally. These changes spawned fast fashion, which fulfilled the ever-changing demands of customers with new trends and collections. It, however, jeopardized the environment. Fashion houses are reviewing business objectives and strategies as they strive to cater to eco-conscious customers who demand responsible and sustainable fashion. They have also been nudged to adopt sustainability practices by the ESG developmental goals of the United Nations Framework Convention on Climate Change that has 154 nations as signatories. They are, thus, investing in cutting-edge innovations in materials (novel fabrics), wearable tech (chip-embedded apparels), circular economy, and resale commerce. The ultimate objective is to build a brand aligned with the objective of helping the society, the community, and the planet by adopting ESG practices as a key strategic differentiator, through innovation, sustainability initiatives, and eco-friendly raw materials, and thus paving the path for customer loyalty and brand stickiness. For an inclusive ecosystem play to realize responsible fashion goals, industry incumbents are coming forward with innovative methods. Renowned fashion houses and disruptive deep-tech start-ups are collaborating for radical experiments in material science innovation (Figure 1). They are working on fibre innovation using synthetic, re-engineered fibres, including bio-fabricated leather and e-textiles, to enable mainstream adoption. The pace of innovation has been so rapid that concepts once seen as esoteric—NFTs (non-fungible tokens), virtual fashion, metaverse, gamification, and AI

Influencers—are expanding and edging closer towards being common. Innovations in fashion value chain components are saving cost, enabling greater reach, and scaling up day-to-day operations. They include: designing using 3D design and AI planning merchandising and planning by leveraging virtual sampling and video signoffs B2B sell-in utilizing digital selling and virtual showrooms Remodeling sourcing and supply chain by nearshoring and vendor integration Higher consumer engagement with virtual shows, social selling, and AI influencers Sales and marketing leveraging in-app social commerce A graphic showing how startups and incumbent players in fashion are breaking new grounds in the industry to contribute to sustainability KPIs. Unspun, for instance, is a startup backed by the National Science Foundation and H&M amongst others. It makes custom-fitting jeans on demand from body scans, which means zero waste and true personalization for every order. Another startup, Renewcell, transforms discarded textiles into recyclable Circulose. It has signed on with H&M. Fashion for Good Consortium and Conservation X Labs (microfiber novelty innovation) are the other startups working on improving the fashion industry's sustainability quotient. Innovations are also helping the industry become more sustainable. AI influencers (Rozy created by Korean media company Sidus Studio X, Lil Miquela, Lil Wavi); circular fashion software (BA-X); fashion rental marketplace (Style Lend); lLab-made fabrics (Provenance and Modern Meadow); virtual clothes: (Superpersonal); and AI designers and stylists (Intelistyle) are among such innovations. Incumbent players are also stitching together partnerships to meet their sustainability goals. Zara has joined hands with Ader Error, while H&M has partnered with Ceek City and debuted in Metaverse; Zalando has partnered with Google (AI real-time fashion trends forecasting); Project Jacquard in Levi's (in association with Google's ATAP lab) has resulted in touch-responsive textiles; H&M and VeChain have come together to collaborate on provenance (blockchain for tracking counterfeiting of goods). The established players are also putting their weight behind innovations that improve sustainability. Tommy Hilfiger and Gucci have created digital showrooms; Gucci is embracing resale and gaming as its strives to become carbon- neutral; Lululemon Studio Mirror hasve introduced a smart fitness mirror for at-home high-end workouts; Ralph Lauren has a virtual store on Roblox, while Dolce & Gabbana and Louis Vuitton have introduced luxury fashion NFTs. Full screen All the innovations are digitally enabled and aligned to the business purpose of meeting ESG goals with profitability and becoming an inclusive ecosystem, thus ensuring benefits for all stakeholders —employees, investors, vendors, customers, and society. The fashion industry has put sustainability at the center stage especially after being indicted as a major ESG violator across its value chain. With growing consumer awareness, industry players have started aligning themselves with the greater purpose of supporting communities and their stakeholders. They are bringing in changes in the value chain to increase market share and customer loyalty by deepening their involvement with the community and catering to the demands of consumers conscious of the environment. It is not just the COP26 or the UN sustainability development goals (SDG) that is driving the industry's sustainability push, it is also the changing consumer trends that hold brands accountable for environmental and social impacts (Figure 2). A graphic listing the sustainability drivers in retail and fashion. The drivers can be put into three categories: government and regulatory

bodies; consumer and brand perspectives; and peer or, business perspectives. Government and regulatory bodies have pressured retail to reduce impacts on the environment (special focus on climate change, biodiversity, and scarce resources) and have brought in greater environmental regulations. In addition, a coalition of 150 companies has encouraged policy makers to invest COVID-19 recovery funds in green initiatives in line with the Paris Agreement. Fashion is as yet under-regulated. In Europe and the US, governments are considering a raft of new policies and regulations, including stricter supply chain obligations, tighter guidelines on marketing a product as sustainable, and incentives to support better business models. The consumer behavior driving sustainability in retail is their willingness to pay more for sustainable products. Women, Gen Z, and people with higher incomes—key retail segments—are advocating sustainability, forcing retailers to include it in their strategies. Similarly, in fashion, consumers are demanding concrete, demonstrable, and quantifiable actions to achieve sustainability goals. Business aspects such as assets under management (AUM) for ESG funds doubling in the past three years and stakeholder capitalism are also major drivers of retail's quest for sustainability. In fashion, 50% of C-suite executives in 2022 said consumer demand is driving their pursuit of sustainability. Increasing regulatory crackdown (greenwashing, worker rights, climate agenda, economic headwinds) is also a major driver. Full screen Fashion brands have started steering their focus more towards circular business models, making their products easier to repair or reuse through platforms for re-commerce. They use greener materials to reduce environmental effects of production and make garments with new fibres and technologies like garment-to-garment recycling machine that shreds old garments and converts them into new ones. Blockchain (NFTs) is becoming the underlying technology for majority of sustainability-related initiatives that focus on traceability like digital 'product passports' that help tackle counterfeiting. Brands are striving to provide healthy working conditions for underprivileged workers by committing to follow the Fair Wear Foundation's Code of Labour Practices and also ensuring inclusivity by acknowledging their contribution and efforts as skilled artisans. The biggest question is how much progress fashion houses have made towards achieving the ESG goals. A recent Sustainability Index report released by Business of Fashion (BoF), a forum recognized for its advisory services in the global fashion industry, highlighted that the transformation efforts taken by fashion's largest companies across segments, to establish more responsible business practices by 2030, are yet to gain momentum. Fundamentally, to provide greater impetus to sustainability initiatives, incentives that drive the industry need to be revamped. Here are some initiatives and regulations that can be replicated across geographies: Market participants should be driven by regulation or market action like 'UN Alliance for Sustainable Fashion' working towards ceasing environmentally and socially destructive practices of fashion. They should price the protection of natural resources into cost of goods and their production. They should incentivize better environmental stewardship like in the EU evaluation of garments sold on a sustainability scale assessing their environmental impact and recyclability. Policymakers should focus on the manufacturing impact, marketing claims, and waste generation like the law in France for 'carbon label' in garments informing consumers of products' environmental impact. They should put financial penalty on polluters, like

The Fashion Act proposed in New York to hold fashion brands responsible for standardized environmental and social due diligence policies. Organizations will be unable to meet the sustainability agenda by focusing only on a single component. They need to focus on making the entire ecosystem sustainable to achieve the greater purpose of being a responsible fashion by leveraging continuous technological innovation and keeping humanity and society as their priority. How Sustainability Impacts the Retail Customer Experience The 'Technology' Shots that Stores Need to Level Up Customer Experience Data Analytics in Retail for Better Grocery Range Rationalization Improving AI Maturity in Retail with the 3A Framework 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 sustainable supply chain is key to achieving circularity

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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. Guy Ferrier Consulting Director, Supply Chain Practice, C&SI, TCS ANZ You have these already downloaded We have sent you a copy of the report to your email again. Supply chain sustainability is a pressing issue for the future of business and the world. With Australian and New Zealand-based companies investing more money into sustainability initiatives, seeking to reduce waste and carbon emissions, Guy Ferrier, Director, Supply Chain Consulting Practice, Australia & New Zealand at TCS, explores the best practices in achieving circularity and building sustainable supply chains. The earth will become warmer by 1.5 degrees by 2030, compared to pre-industrial levels and is predicted to rise by more than 2 degrees by 2050. The risk inherent in this environmental change underscores the need to implement sustainability practices immediately. As of 2020, the World Bank estimated Australia to be emitting over 14 tonnes of carbon or carbon equivalents per capita per annum, but a net zero emission target will see us dropping this to around 1 tonne. As such, there is significant work to be done. Our Climate Change Authority has been requesting submissions since February 2023. On June 27, it released a consultation paper that will likely see a considerable expansion in the proposed mandatory reporting, which will start to apply for the financial year ending June 2025. Large-scale data collection and related reporting requirements will need to be in place by July 1, 2024— less than one year away. Australian organisations have long been looking at potential compliance factors. But this shift to a mandatory reporting culture requires organisations to crystallise their approach, define the data they need, how it will be captured, what cost-savings in the process can be done, and overall, how they will meet their carbon-cutting objectives in the short term. They will need to identify ways to effectively implement the essential sustainable practices that benefit their business while completing their revenue and profit goals. First, the workforce must be trained to increase digital skills, as digital technology is essential to achieving sustainability. It includes using technology to optimise and measure the outcomes of improved processes, reduce waste, increase employee efficiency, and expand performance across functions and teams for monitoring and corrective action. It can be achieved using tools like cloud computing, data analytics, improved EAS usage, and Internet of Things (IoT) devices. Second, many organisations are looking at how to adopt electric vehicles to reduce carbon footprint where transportation or mobile servicing of their customers is a significant contributor to their greenhouse gas emissions. In these cases, the shift towards electric vehicles and reducing carbon-heavy fuels is critical to cutting these emissions. Companies can also encourage public transportation, cycling, and walking among their employees to reduce the overall carbon footprint. Third, companies must change their mindset from short-term profits to longer-term sustainability goals. They must think beyond the present and focus on future profits. This is where the circular economy comes in and the role of the supply chain in it. The traditional linear model involves extracting raw materials, producing goods, and

disposing of waste. This model is not sustainable in the long run as it leads to resource depletion, pollution, and an increasing stockpile of waste products from which valuable resources are almost irrecoverable. Conversely, the circular model involves designing products for reuse, repair, recycling, and resource recovery. This model aims to create a closed loop where resources are conserved, and wastage minimised. The world reuses only 9% of the total resources extracted yearly, creating a circularity gap. It's an ample opportunity for companies to explore, with over 21 significant areas identified [by the Circle Economy reported at the WEF] for organisations to explore. Companies can adopt circular practices by using recycled materials, designing products for longevity and ease of repair, and implementing closed-loop supply chains. The result is an opportunity to look at many aspects of their business model and the technology required to track and report how their resources are transforming. Circularity is broad and covers all aspects from using virgin, recycled and repurposed products, how they get remade and for what purpose, and identifying the end-of-use outcomes in landfill, incineration, dispersion or emissions as atmospheric carbon or equivalents. Technological enablers are useful for pushing the scope of technology in supply chains and other parts of the business model to achieve those changes and track results. The use of Digital Twins is increasing as they provide virtual replicas of physical systems, processes, or assets created and maintained using real-time data. They provide companies with an analytical approach to improve efficiency and reduce costs. Although they sound complex, in many cases, valuable replicas can be set up in only a few weeks that return organisationally important feedback on areas for improvement, often in execution timeframes. Other technologies like Blockchain can create transparent supply chains with verifiable and tamper-proof inputs, allowing companies to track the movement of goods and ensure that they are produced and transported sustainably with the right level of accountability falling on the participants in the supply chain. Finally, Artificial Intelligence can optimise supply chain operations where significant data inputs are available, reducing waste and improving efficiency. Sustainable practices in production and packaging are also important to reducing waste. Eco-friendly machinery is necessary for organisations to reduce their carbon emissions. Treating and reusing waste products as raw materials is another way to achieve sustainability goals. Connecting different industries where waste can be used as raw materials is also a step towards attaining circularity in the economy, where waste from one industry can be repurposed and used as a raw material in another. The need for circularity in the economy is now emerging as an essential string to the bow of many companies for them to explore and find rich potential for further greenhouse gases (GHG) and sustainable practice opportunities. The focus on GHG footprint reduction in energy around electricity, heating, construction, transport, and manufacturing has developed over an extended period. However, circularity is emerging as an equally important part. In some senses, it has a clearer finality and a shorter lifetime for the rarest materials. Considering the steps from awareness to planning to implementation of sustainability practices, awareness and action are required now. A lot will be achieved if each industry starts with a few essential initiatives and gradually moves towards the more challenging aspects. Companies can focus on reducing their carbon footprint and implementing sustainable practices for their benefit and the planet. With

legal frameworks and technologies available, achieving sustainability goals is within reach. Let us work towards a sustainable future, one step at a time. Circular Economy and its Benefits to the Chemical Process Industry Adopting Green IT Framework for Organizations' Sustainability Journey Accelerating the Green Transition with a Robust Sustainability Agenda Benefits of Connected Enterprises and Connected Worker in ANZ 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 =====================

Take a MELT approach to faster wireless network site build

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TCS. Discover our press releases, reports, and company announcements. Jony Chimaniya Domain consultant You have these already downloaded We have sent you a copy of the report to your email again. The race for next-gen networks is truly on. They allow companies to quickly adapt to change, customer demands, and technological evolution. For most telecom service providers, 5G deployment and rollout at speed are top priorities. Not just telecom, industries from media to healthcare are betting big on 5G and 6G. As with their low latency and high-bandwidth capabilities, the potential of these networks to deliver superior customer experiences and support business growth is huge. Infrastructure modernization or build, adoption of 5G or 6G, and the launch of compatible devices come with multiple challenges. Field visits to assess inventory and infrastructure and gather data for deployment or expansion are time-consuming—taking up one-third of the total rollout cycle time. Data accuracy, scalability, supply chain revenue leakage, and lack of end-to-end asset visibility are other issues. Then, there's the talent shortage, with only a limited pool of resources with the required expertise available. Additionally, organizations need to ensure that their power distribution networks and fiber solutions for cell towers are capable of supporting devices with speeds ranging from 100 to 400 Gbps, as required by new telecom standards and policies. So, what can companies do to help them roll out agile and robust wireless network services more rapidly? Wireless network site build accelerators based on a metrics, events, logs, and traces (MELT) framework is the way forward. They help firms deal with the complexities of network deployment, monitoring, and control. These accelerators provide data-driven information and enable systems analysis for site engineering, network design, installation, and integration—all on one platform. The result? Expedited digitization, automation, and deployment.   As the MELT framework involves comprehensive monitoring and analysis of network data, it ensures optimal performance, detects issues early, and enhances the overall quality of telecom services. Meanwhile, deep observability—which refers the ability to measure a system's current state based on the data it generates—is a powerful tool for seamless network deployment. One of the advantages of deep observability is identifying the root causes of issues quickly, which ensures swift action. Also, security incidents can be identified and addressed promptly. All of this leads to enhanced reliability and network performance. With the MELT framework at its core, wireless network site build accelerators or platforms can support the following: Smart site design and engineering This has become smarter with analytics, drones, scanners, 3D modeling, and artificial intelligence/machine learning (Al/ML). For instance, communications service providers (CSPs) exploring deployment sites can get a 360-degree view of those sites using digital twin solutions. The amalgamation of technologies significantly enhances network delivery efficiency and reduces time to market. Embedded with the capabilities needed to monitor, analyze, automate, optimize, secure, and manage smart site components and operations efficiently, wireless network site build accelerators based on the MELT framework can contribute to improved performance, cost-effectiveness, and sustainability. Remote supervision The MELT framework boosts remote supervision. The real-time monitoring, advanced analytics, automation, efficiency improvements, predictive insights, security measures, and remote configuration it allows enables CSPs to effectively manage and oversee their networks, even in remote and challenging environments. Whether it is

verification of site conditions, occupational health and safety checks, troubleshooting, or test verification, it helps CSPs achieve all this remotely and at speed—boosting quality assurance and eliminating unnecessary visits. Intelligent solutions for rapid site deployment Whether it's for building 4G, 5G, or virtualized open ecosystems, network intelligence proactively detects and resolves issues before performance is impacted. With network intelligence, critical incidents are reduced by 40%, while network performance issues are decreased by 70%. With the intelligence they bring, MELT-based network site build accelerators significantly contribute to faster and more efficient site builds, quicker expansion, and higher performance. The applications of MELT-based wireless network solution accelerators are many. So are the benefits that CSPs can gain from them. These include improved visibility of tasks for employees, reduced project time, enhanced data integrity, digitized engineering bill of materials, increased working capital, and more. These accelerators provide personalized experiences across various channels along the customer journey. They enable organizations to connect their front-end systems with complex back-end operations. This integration should be well-coordinated, automated, and enriched with actionable insights to quickly adapt to market and customer demands. With wireless network site build accelerators, CSPs can enhance customer engagement, improve operational efficiency, and stimulate growth. They offer capabilities on a single platform that combines advanced case management and AI capabilities for the entire network building process. Acceleration of Site Engineering for Faster 5G Network Deployments Enable faster 5G rollout with SDN TCS Positioned as a Leader in 5G Engineering Services by Everest Group ORAN: Breaking Free from the Shackles of Legacy RAN 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 ======================

NFTs are driving authenticity in automotives

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these tangible assets, streamlining their purchase, sale, and trade, while concurrently mitigating the risk of fraudulent activities. Blockchain platforms like Ethereum, which offer a decentralized and immutable ledger, are frequently used to build NFTs. Product details, ownership changes, and sales of NFTs are all captured in blockchain records. An NFT is a unique cryptographic token recorded on a blockchain and used to certify ownership and authenticity. The unique properties of an NFT—openness and immutability—make it virtually impossible to fake or alter. By utilizing the unique properties of an NFT—openness and immutability—it becomes virtually impossible to fake or alter data. Each NFT is equipped with metadata that details the item's attributes—model name, engine number, year of manufacture, ownership handover details—through the supply chain, from manufacturer to dealer to retailer to consumer. It also includes other pertinent details such as service logs. A frequently used method is to hash the information and save the resulting hash on the blockchain to link it to the NFT. The hash will change if the information is altered, making it possible to check the NFT's integrity and validity. NFTs can bring several other benefits and applications to the automobile sector apart from provenance and authenticity. The adoption of NFTs in the automotive industry is still in its early stages. A luxury car manufacturer has begun using this technology to store and track data related to vehicle maintenance. And certainly, the use of NFTs can be expanded to nearly all industries because counterfeiting is a universal threat. For instance, in healthcare, where patient safety and data breach are of critical concern. NFT technology can ensure the security of critical patient data, including medical history, treatment protocol, personal details, changes in health status and so on through an immutable ledger. Each piece of data for an individual patient can be associated with a unique identifier that contains metadata. Hashing ensures that any changes made to the hash triggers an alert about the tamper or breach. In the luxury goods industry too—involving art, jewelry, fashion—NFTs, therefore, hold the promise of revolutionizing the way authenticity and provenance are verified for products across industry. Setting up Generative AI Guardrails for Secure LLM Usage TCS COIN™ Podcast: Discussing Data Management and Business Intelligence Avery Dennison explores new digital strategies with TCS TCS' Robotics Solution for Smart Warehousing and Material Handling 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 =====================

Ecosystem-led growth with composable systems

Transformation: Unlocking Exponential Value Highlights On this page Why composability matters Breaking it down Proving the concept Exciting times ahead 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. Sukriti Jalali 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. Sukriti Jalali Principal Consultant, BFSI, TCS You have these already downloaded We have sent you a copy of the report to your email again. Composable systems infuse agility in business operations while ensuring superior service delivery and customer experience. The 2022 Gartner® CIO and Technology Executive Survey* found that only 7% of banks and investment firms were following the practices of a highly composable organization. So, why should organizations care and why is composability becoming important for their future growth? Banking, financial services, and insurance (BFSI) firms are democratizing financial inclusion across both formal and informal sections of the society. This is also improving access and affordability of digital solutions across industries such as healthcare, insurance, ecommerce, travel, and capital markets. BFSI firms are, however, navigating a very challenging market dynamic. At one end, they face competition from fintechs and insurtechs, while on the other, non-financial entities across retail, electric mobility, and ecommerce are slowly targeting their customer base. To spur agile innovation, respond quickly to changing market demands, and mitigate threats to their business models, BFSI firms should reimagine monolithic technology architectures and move away from point-to-point integrations. This is where composable systems have a key role to play in not just reimagining the technology architectures and enhancing customer experience, but also orchestrating an ecosystem. To understand composability, look the Lego way. Composable

systems enable the assembly and reassembly of packaged business capabilities, which work as fully functional Lego-like blocks. From a technology perspective, the characteristics of a composable digital core include: Composability can be enabled across multiple layers, including infrastructure, data, enterprise, front-end and business applications. Let us look at a few examples where the BFSI industry creates interchangeable building blocks that can be leveraged across an extended ecosystem. Banks and financial services firms are adopting open banking to improve market penetration and ensure their offerings reach the unbanked population. Buy now pay later, integrated payment gateways, real- time payments, credit scoring for loan approvals, and request to pay are all examples of composable applications that have been possible because of a modernized digital core. Banks and financial institutions are keen that these innovations get repurposed by other industries. The ecosystem is reusing these pre-verified integrations to provide frictionless experience to end users. The insurance industry is looking to expand its coverage to underrepresented segments like gig workers and blue-collared workers. They also want to personalize their products and expand their customer reach through other industries. Innovative concepts like embedded insurance, micro-insurance, and pay-as-you-go models leverage composability-first principles. While these can be offered by an insurance provider, they can also be easily bundled by a travel, retail, or ecommerce firm through enterprise APIs, and distributed to a larger customer base. Healthcare is on its way to becoming personalized and seamless because preventive care, financing options, and remote home care, all will work in tandem through shared digital platforms and open APIs. Adopting and integrating composable APIs from BFSI products into healthcare processes will ensure greater innovation in the ecosystem, empowering healthcare professionals to make focused assessments, enable affordable payment options, and accelerate treatment decisions at the point of care. Ecommerce and retail players are making the best use of BFSI composable applications at scale. Be it buy now pay later, extended warranties, real-time payments from financial services or embedded insurance, they are providing services in an integrated value chain to the end consumer. Banks and financial services firms are keen to ease the flow of working capital or lending across B2B ecommerce supply chains, and composability will allow them to make these processes more ordered and seamless. Travel and transportation companies are becoming travel plus experience organizations. They can utilize some of the innovative composable APIs from BFSI enterprises to offer embedded insurance, multiple financing options, personalized shopping experiences at airports, and even orchestrate live events for travellers. Composable systems will facilitate the creation of purpose-led ecosystems and customer-centric offerings. While BFSI firms are providing composable building blocks for other industries, they are embracing plug-and-play capabilities for their own offerings. They are, for instance, using existing building blocks for account verification, text banking, push notifications, biometric identity authentication, and compliance risk. They can choose to create these building blocks in-house, leverage specific ones from partner APIs, or substantially reduce the time to market by taking advantage of an established industry product. Using composable systems, BFSI firms can launch a range of embedded products and services through an ecosystem of cross-industry partners, paving the way for transformative growth. *Gartner,

The Top Strategic Technology Trends in Banking and Investment Services for 2022, Nicole Sturgill, Moutusi Sau, 29 April 2022 GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved. Neuromorphic Computing in BFSI: The tech of the future TCS BaNCS™: Enabling Transformation in Banks and Financial Institutions Next-gen Composable Core - The Future of Banking Cyber Insurance for Small and Medium Businesses 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 =======================

The shifting trajectory of quant in financial services

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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. Indra Chourasia Industry Advisor, Analytics and Insights, BFSI, TCS You have these already downloaded We have sent you a copy of the report to your email again. Quantitative modelling and analytics (popularly called quant) is used widely in the financial services industry. By leveraging quant, financial service providers analyze trends and forecast diverse business variables and metrics such as income, cost, asset valuation, market volatility, risk probability, liquidity, and price. In the financial services industry, the adoption of quant is on the rise in areas such as automated investment management, robo-advisory, non-linear investment and trading strategies, and risk management and compliance. In recent years, quantitative modeling is also being widely used in market and credit risk assessment, asset-liability management, liquidity management and financial crime prevention. The data deluge has driven the adoption of big data and data science techniques as firms have started exploring alternative data for crucial insights. Data science has also altered the profile of functional, silo-centric quant, which traditionally relied on hard, structured data alone. Moreover, financial services firms need multidisciplinary expertise to harness unique insights from varying sets of soft information such as non-financial, contextual data. Such qualitative and non-formal data insights are key to incisive business decisions. Quant augmented by data science and artificial intelligence (AI) creates new possibilities. It enables financial services firms to quickly design customized products and enhance resilience. Integrating data science capabilities into quantitative modeling opens new ways of analyzing many hard-to-define, human emotion-based concepts such as sentiment, behavior, and bias. This enables detailed evaluation of multifaceted factors involved in vital business decisions. BFSI functions can benefit tremendously from data science and AI-driven quant. Advanced features of quant help simplify the analysis of complex issues such as environmental, social and governance (ESG) aspects, climate risk, customer engagement, and conduct risk, adding unconventional advantages. Other areas that will benefit include credit assessment, default and delinquency prediction, operational efficiency, predictive and prescriptive screening of prospects, and credit decisions. Wide-ranging market and credit risk simulation, pricing estimates, sensitivity models, and hedging can further strengthen resilience. Additionally, banks can enhance fraud management and financial crime prevention through proactive identification of anomalous behavior patterns and market abuse, helping them adopt a preemptive stance in risk mitigation. Further, financial services firms can improve customer engagement by leaps and bounds through next-best action recommendations and analysis of customer advocates and their referral networks. This will open new avenues for contextualization, greatly enhancing the customer experience. Similarly, quant reinforced by data science and AI will help banks leverage non-market insights for portfolio allocation and trading strategies. It will also help banks to take advantage of non-conventional assets and market-focused opportunistic investment options. By deploying quant bolstered by data science and AI, financial services firms can greatly improve liquidity and cashflow forecasting, prediction of delays in receivables, regulatory compliance, and prevention of

transactional failures and exceptions, in turn, enhancing overall operational efficiency. The adoption of quant backed by data science and AI offers enhanced capabilities. However, it also requires a strong data and analytics foundation supported by an agile operating model, platform, and governance. To accomplish this, BFSI firms must take the following steps: We believe that BFSI firms must invest in integrating the capabilities of quant and data science. This will enable them to unravel distinct insights to design well-thought-out and agile responses and drive intelligent business decisions. A well-defined approach considering the larger enterprise context can deliver a competitive edge for sustainable business growth. Revamping Bancassurance Business Model for Better Customer Experience ESG Integration into Credit Assessments TCS Open Banking Offerings: API & Data for Solutions Beyond Compliance Tuning into the Emotions of the Capital Markets with Sentiment Analysis 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 generative AI will disrupt capital markets

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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. Anand Chidambaram Technology Lead, Capital Markets, BFSI You have these already downloaded We have sent you a copy of the report to your email again. Introduction Capital market firms operate in a complex and ever-changing technology landscape. At the same time, they must contend with increased regulatory scrutiny, competition from fintech players and the crypto industry, soaring operational and service costs, increased customer expectations, black swan events and so on. Firms need to constantly adapt to stay ahead of the curve, and artificial intelligence (AI) technologies such as generative AI (GenAI) have become a key enabler in this strategic play. In recent months, GenAI has garnered interest from various financial services firms after the launch of ChatGPT, which is powered by large language models (LLMs). GenAI can combine with AI and human intelligence to create content such as text and images and solve complex analytical problems. GenAI in capital markets GenAI finds relevance in capital markets in particular as domain-specific tools are readily available. While tools such as ChatGPT are generic across domains, vertical-specific LLM-based tools are gaining popularity as they offer better accuracy. Domain-specific models perform significantly better than open models on specific tasks without compromising performance on general LLM benchmarks. BloombergGPT is an example of a domain-specific model relevant for capital markets. However, open models outperform domain-specific models in general tasks. In capital markets, domain-specific models are useful in classifying news, preparing and filing regulatory reports, retrieving company-specific information, and creating research reports on companies. We examine a few areas where GenAI can be leveraged in the capital markets space. Wealth management Clients of wealth management firms expect personalized advice, presenting a dilemma to firms, which are under pressure to reduce customer service costs. Financial advisors can benefit from a recommendation engine built using LLMs. LLMs can be leveraged to draw insights from unstructured data such as research reports, regulatory filings, and images. GenAI can summarize data from many sources quickly and accurately and generate content for financial advisors and investors much faster than existing systems. Trading Electronic trading systems execute trades using algorithms and defined trading strategies. GenAI can enable financial services firms to summarize information required for trading in real time, thereby reducing execution time. Additionally, it can rapidly analyze vast amounts of historical data and trends to predict short- and near-term price movements based on news and economic indicators. Further, it can generate customized technical and fundamental indicators for making buy or sell decisions. From an algorithmic trading perspective, users can leverage GenAI to create bots that can automatically place orders based on personalized trading rules. Customer engagement Backed by extended reality (XR), an LLM-powered digital assistant can read facial

features as well as analyze customer emotions in real time and adjust the tone of the conversation. Such assistants can help humanize digital customer interactions and deliver an immersive, contextual experience, in turn strengthening customer relationships. Investment banking research GenAI can help summarize news articles and financial reports of a specific company and generate economic summaries of industries relevant to investment targets. When trained on historical market data along with key economic parameters (such as inflation, interest rate, energy prices, news), it can help firms forecast market trends. Investment advisors and their clients can instantly access stock recommendations without paying hefty subscription charges for research reports. Fraud and compliance management Capital market firms can improve their ability to detect and report financial crimes to regulators and enhance overall compliance and risk management efforts. LLMs can be deployed to identify suspicious transactions in exchanges. Further, GenAI tools can be used to prepare accurate suspicious activity reports (SARs) in real time with lesser human effort. They can also be used for the review of contract documents during onboarding with lesser effort and at a higher accuracy, which improves compliance. Risk management GenAI has the potential to improve the effectiveness of risk management in capital markets through synthetic data or data that is artificially generated rather than produced by real-world events. Synthetic data has emerged as a popular tool for risk management experts to overcome the limitations of historical data and access a full range of stress scenarios. GenAI can greatly enhance risk controls by identifying fraudulent transactions in order books of stock exchanges using synthetic data, preventing insider trading and supporting anti-money laundering (AML) measures. Concerns plaguing GenAI GenAI has immense potential to disrupt capital markets in the analytics and advisory areas. ChatGPT can enhance productivity by playing the role of a co-pilot to researchers, traders, and compliance specialists. End-customer experience too will improve significantly through smarter chatbots and transparent interactions. However, GenAI has raised questions around transparency, data security, fundamental rights, and fake news leading to social tensions. Additionally, concerns such as fear of job loss, data privacy, and lack of enterprise offerings will also need to be addressed effectively. This will demand collaboration among stakeholders such as governments, regulators, and capital market firms to accelerate the adoption of GenAI in capital markets. The way forward In our view, GenAI adoption will occur gradually given skepticism and apprehensions in the absence of comprehensive regulations. However, we believe that capital markets firms must invest in the requisite assets, frameworks, and talent needed to explore the possibility of running proofs-of-concept (PoC) to assess the feasibility of large-scale adoption. As they do this, they must also keep abreast of the developments in the GenAI space because once the technology becomes mainstream, firms will need to hit the ground running to gain a lead. 5G and Cloud Edge are Breaking the Barrier to Decision-making in Capital Markets Fostering a sustainable workplace: How CSPs can achieve net-zero goals Quantitative modelling and analysis and its role in finance DeFi: Enabling Seamless Finance Transformation and Process Efficiency Theme Font size Line height
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Why CSPs must foster a sustainable workplace culture

Industry Connect. Curate. Comprehend: Unlocking Value Beyond Boundaries Highlights On this page About the authors 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. Anand Sitaraman Kallol Basu 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. Anand Sitaraman Head - Human Resources, Communications, Media, and Information Services Kallol Basu Head - Strategy, Communications, Media, and Information Services You have these already downloaded We have sent you a copy of the report to your email again. New world order The COVID-19 pandemic led to businesses reimagining the work, the worker, and the workplace. As with any other industry, this has resulted in telecommunications companies focusing on environmental, social, and governance (ESG) factors. According to the Greenhouse Gas Protocol – the global accounting standard for greenhouse emissions – telcos have reasonably navigated Scope 1 (direct emissions) and Scope 2 (indirect emissions from energy sources). Scope 3 emissions, that are not associated with the operator itself but which the organization is indirectly responsible for, are harder to track. A significant part of Scope 3 emissions come from the workplace. The ESG framework assesses how an organization can nurture its workforce and empower its human capital amidst rapidly changing environmental, social, and economic

systems. Creating sustainable workplaces is now a critical requirement for communications service providers (CSPs) in their journey toward net zero. Rethink workplaces Environmental and social factors are key to transforming telcos' sustainability strategies. The global energy crisis, increased pressure from stakeholders, and the emergence of new digital technologies are additional stimuli for communications and media firms to transform their ESG strategies. These include tracking greenhouse gas emissions, finding a solution for the energy consumption of end-of-life equipment, and dealing with the challenges of a global customer base. CSPs can now consciously connect people and organizations to their digital society, increasing transparency and building effective dialogue without compromising on ethics and integrity. Become sustainable Rethink how workplaces are utilized, create space for social responsibility, and ensure a healthy governance system. Telcos need to become centers for promoting teamwork through skill workshops and social and creative exchange. For a sustainable workplace, telcos should take a holistic approach by: Lead the way Keeping Scope 3 emissions under check is essential to integrate ESG principles into a telco's ecosystem. By optimizing the supply chain to allow for circularity, agreeing to equipment-as-a-service, making sustainability a critical evaluation benchmark during procurement, and working with suppliers to reduce their Scope 3 emissions, telcos can incorporate ESG principles into their ecosystems. Additionally, telcos should: An organization with a highly engaged workforce will report a high ESG maturity, leading to positive reinforcement from the entire ecosystem. Telcos must lead in creating a sustainable workplace that protects against further harm to biodiversity and climate change while enhancing employee well-being. Such a working environment will bring in new talent, thereby contributing to the overall sustainability of the business. The rising importance of ESG Sustainability in the Staffing Industry: A Three-pronged Strategy Achieving Sustainable Procurement by Adopting Five Procurement Mantras Technology in Construction to Support Enterprises' ESG Vision 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 =====================

Team TCS Teachers is back, and it's bigger than ever

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to transform lives and communities in the same way that technology transforms businesses. Inviting teachers to run on the streets of New York City, London, Toronto, Boston, and Chicago as VIP guests of TCS is a small way to thank them. The community formed by Team TCS Teachers, past and present, is inspiring. In addition to a VIP race experience with TCS, they gain so much more by way of the friendships they build with one another and with us. Leaders of change The Team TCS Teachers contest is growing, with no plans to slow down. 2023 was a banner year that featured our largest cohort of Team TCS Teachers in North America to date, with more than 80 winners and the program's expansion to the UK. The contest returned for its sixth edition in 2024, with over a 1,000 applicants vying for a spot in one of our sponsored races. In 2022, our first-ever elite athlete, Susanna Sullivan, joined the group. She may represent the US in the marathon at the World Championships one day and teach math to sixth graders the next. Ultimately, we hope to expand Team TCS Teachers to all of our sponsored marathons. If students are the future, teachers lead the charge—in the classroom, around the track, and on 26.2 miles of city streets. TCS New York City Marathon: Building Belief Beyond Borders From Formula E to NYC Marathon–TCS Makes a Mark in the Sports World Connecting champions with fans TCS Toronto Waterfront Marathon: Going Greener, One Stride at a 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.
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AI, cloud, and the future of media studios

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Rahul Saha Head - Media and Entertainment You have these already downloaded We have sent you a copy of the report to your email again. Constant evolution The media and entertainment industry constantly adapts to new technologies and evolving consumer habits. Media houses can now streamline their workflows and push the boundaries of content creation, setting new standards for a globally connected audience. 5G has paved the way for immersive experiences, overcoming the earlier challenges of streaming lag and slow content delivery. By delivering high-speed internet with minimal latency, 5G has enabled real-time streaming of 4K or even 8K content, seamless sharing of large media files, post-production collaboration, and live broadcasts from any part of the world. The rise of streaming services, especially, has proved pivotal for the media industry's future. A cloud-first strategy Cloud-based solutions have led to improved quality and quantity of content. With easy scalability and cost-effectiveness, along with collaborative possibilities, cloud solutions find ready acceptance and integration in media studios. Production teams can collaborate, share files remotely, and edit regardless of location, helping media studios become more agile and responsive to changing production schedules and deadlines. Cloud storage has also eliminated the need for, and maintenance of, expensive hardware. Additionally, as this service is available on a pay-as-you-go basis, media studios have greater flexibility in managing costs. Direct-to-cloud capabilities in some newly launched cameras are an additional boost to the transformation of the media and entertainment industry. These cameras can bypass local storage, sending footage directly to cloud, eliminating the risk of physical damage or theft of storage devices. By offering real-time alerts through integrated AI-powered analytics, these devices provide intelligent insights into the content being generated, leading to quality control. Artificial intelligence and the way forward Production houses are successfully creating and distributing content with the help of technologies like augmented reality (AR) and virtual reality (VR). These technologies have enabled innovative means of pre-visualization, scene composition, and set design for media studios. Not only have they reduced production costs and time, but they are also creating new possibilities for audience engagement by changing how stories can be told, while diversifying and tailoring content according to the audience. With AI, production units can now automate content recommendation, streaming quality optimization, and copyright infringement detection. AI has enhanced production quality by streamlining operations and reducing downtime while

ensuring quality control, speed, and precision. AI tools focused on understanding, interpreting, and generating human language have changed post-production work for media houses. By optimizing natural language generation (NLG) and natural language processing (NLP), they're able to create automated captions and subtitles, making content accessible to a broader audience. NLP is also useful with sentiment analysis and can automatically detect mood or emotion in dialogue, enabling creators to build powerful narratives. By integrating AI into their editing systems, media studios can: Media studios can forecast demand through predictive analytics, ensuring a steady pipeline of content. Unknown to viewers, these technologies contribute to their seamless viewing experience. Delivering intelligent content Cloud and AI have changed brand awareness strategies for media studios. With audience segmentation through data analytics, media studios can now target marketing campaigns for optimal brand reach. AI-driven predictive analysis enhances content customization, improves audience retention and quality of engagement. Cloud platforms support cross-platform promotion, amplifying visibility across different media channels. Automated social listening tools track public sentiment in real-time, helping studios adjust their strategies swiftly. AI-created immersive experiences have significantly elevated storytelling, making the brand narrative more compelling and memorable for the audience. Brand awareness campaigns are now effective, measurable, and scalable for media studios. As cloud, 5G, and AI technologies make content more accessible, streaming services and social media will continue to be focal points for media studios globally in the foreseeable future. Media studios have transformed the way they generate and manage content through seamless collaboration, enhanced storage capacity, and simplified production processes. Through these technologies, the future of media studios holds greater content diversity, flexibility, and scalability, while keeping costs optimized. Making telecom networks 5G ready: What it takes Server-side Dynamic Ad Insertion and 5G to Scale up the Ad Ecosystem Achieving Sustainable Procurement by Adopting Five Procurement Mantras Transforming Digital Media Content to Stay Relevant & Profitable 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 a strong data foundation is critical to AI success

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when code isn't designed following user-friendly, computer-aided software engineering principles. The situation can be made even worse when multiple vendors are providing similar and ever-evolving capabilities. To scale their AI projects, organizations need to start laying down a stronger data foundation. This requires a full-spectrum approach that accounts for organizational, regulatory, technical, and ethical challenges. In addition, broader AI success depends heavily on constant investments in data literacy, because a strong data culture helps pave the path for successful adoption. The following initiatives can help: Drive modularity: Technology is ever-evolving, so businesses should focus on building plug-and-play components. Bring out tacit knowledge: AI is not BI. It is not meant to help organizations understand themselves. Rather, its mandate is to develop a competitive advantage. To do so, AI solutions must unlock knowledge within the organization. Focus on how the people-process aspects will evolve: When AI is introduced, businesses will need to re-balance activities between humans and machines. Yesterday's process owners and SMEs will need to focus on training and fine-tuning the model rather than doing the job themselves. Elevate the skill sets within the business and utilize all available knowledge: There is a vast difference in outcome when engaging a data scientist from the outside versus grooming business SMEs to play that role. Just hiring a bunch of data scientists will not achieve the intended result, because they won't have the right contextual knowledge to create solutions that will work within an organization's processes. Find the right balance in the service delivery approach. A composite strategy that combines agile, innovative business solutions with a focus on the productivity of foundational initiatives is a must. Get the fundamentals right: Assess the organization's baseline in the following areas: AI applicability to business cases, AI infrastructure and tooling, organizational competency, strategy, and model management processes. Essentially, this includes the entire gamut of capabilities across people, processes, technology, data, and of course AI governance. This can always be done while delivering low-hanging fruits to the business. Overall, organizations must stay focused on strengthening their data strategy, which is a core element for succeeding in the AI world. Building and leveraging a data foundation is key to developing a data-centric culture that's equipped to effectively use the organization's data assets. By creating a complete mosaic of technology and skills, based on a strong data foundation, businesses can accelerate broader success with AI—moving out of narrow project success into enterprise-wide transformation. TCS Datom™: Align your data, analytics, and AI strategy Well-defined Data Valuation Approaches for Enterprises Data maturity requires a data-driven mindset How French companies fare on TCS Datom™ data maturity scale 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.
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Power up with digital twin-backed decision intelligence

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Forum, have taken the initiative of providing guidelines for Communication Service Providers (CSPs) in the domain of DI by initiating the Digital Twin for Decision Intelligence (DT4DI) collaboration project. Many TM Forum members, including TCS, are actively involved in defining and developing a DI framework that integrates DT, AI, and other technologies to help CSPs make faster and more accurate decisions. This framework is evolving, and it may soon become an industry standard. Why adopt DT4DI Data-driven decision-making is still an aspirational goal for many CSPs, and there are many challenges in achieving this. DT platforms leverage AI and advanced analytics to create virtual models of the business ecosystem including customers, products, processes, resources, and the like, and are strongly emerging as a viable way to enhance DI through simulation. With the growing emphasis on DT and AI solutions, DT4DI has a potential to help CSPs take real time accurate data-driven decisions by improving forecasting, predictive ability, and simulations. Adopting DT4DI solutions and practices will enable organizations to: TCS TwinXTM and DT4DI TCS TwinX™ enables organizations to construct their own enterprise digital twins by modelling key enterprise entities including customers, products, processes, and resources. The platform enables organizations to experiment and evaluate multiple business strategies at scale to visualize each result prior to the real-world execution. This digital twin-based simulator helps construct hypothesis, model entities, and test business decision outcomes in the virtual A/B testing mode, enabling organizations to analyze, adapt, and transform towards achieving holistic business goals. Through simulation and experimentation, TCS TwinX can provide evidence on the effectiveness of a decision, thus increasing confidence, lowering costs, and reducing risks. TCS TwinX™ A whitepaper, ontology, reference architecture, and maturity model have been published as part of the collaboration project with the TMF leveraging TCS TwinX™. Recently, a point of view was also presented on how TCS TwinX™ aids DI via risk-free business experimentation in the digital ecosystems use case, overcoming the complexity of dynamic multi-player, multi-decision scenarios involving various decisioning approaches. Leveraging AI-driven intelligent methods for data monetization Digital Twin Adoption: Creating Opportunities for Positive Change Customer Journey Simulation and Deviation Analysis with Enterprise Digital Twin How Telcos are Engineering Net Zero Strategies for Sustainability 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 advanced data analytics boosts university enrolments

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education institutions must place an even higher emphasis on delivering a remarkable digital experience for both students and faculty to remain competitive. Most progressive universities and colleges across the region focus on providing an enhanced digital experience. They're rising to meet the challenge by embracing the cloud, unifying their applications and systems, and putting data front and centre of their strategies to enrich the experiences of all—students, faculty, and alumni. Unlocking the power of predictive enrolment Technology plays a significant role in how educational institutions differentiate themselves, unlocking fresh opportunities to educate new learners via innovative business models and pursue strategic business initiatives. Having flexible and scalable digital platforms built on trust that marries data and intelligence in a way that is student-centric and supported by a vibrant ecosystem of providers and skilled higher education users is vital. With so much riding on the ability to deliver a seamless, connected experience for students, faculty, administrators and alumni, universities must integrate their data and apps and automate their processes. They need to connect all their disparate systems. Colleges and universities serious about future-proofing their business model are already leveraging innovative, data-driven solutions to modernise their IT infrastructure and drive connected experiences for students, faculty, and alumni with fast, streamlined, and efficient processes. How does a predictive enrolment model work? A predictive enrolment model is a statistical technique used to determine the likelihood of a student performing some desired behaviour. To do so, universities can study the behaviour of previous students to identify variables that influenced their enrolment behaviour and, assign weightage to the variables based on their relevance and calculate a "PM score or Predictive Model score" for each student. PM scores can then determine the likelihood of a student enrolling in a university. PM scores will also help in assessing the students' performance and determining which students will need academic support based on their talent score in the PM score. Universities can easily identify their target segment by analysing student data over the past five years. For example, a university can understand the socioeconomic levels of students, their key capabilities, and interests. Based on this information, universities are then equipped to predict the expected enrolments for the upcoming year and thereby identify their key target segments. The future of education is built on intelligent integration In today's tumultuous higher education landscape, it is more important than ever for institutions to guide strategy with data. With competition for students at an all-time high, some established tactics for courting and retaining students are no longer viable. At the same time, shaking up an enrolment, retention, or advancement process without strong evidence could prove costly in a precarious time. Done correctly, predictive modelling can provide objective insight to inform strategic decisions across the institution. The higher education industry faces disruption across its value chain, which means a greater need than ever to adapt. University data will not only provide precision regarding where efforts would be best placed. It can also help institutions build the case for change and measure the success of its outcomes. Now is the time to make that move. TCS a leader in higher education digital services: Avasant Report Adapting to the Rise of Digital Assessments in Education Leveraging the power of data in public sector organizations Ecosystem-ready Data Operating Model – The Way Forward for CSPs Register for our email newsletter to get the freshest takes,

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Futurist boots up his digital twin to ace TCS NYC Marathon

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Quinn, a thought leader in the potential of digital twins and other emerging technologies to transform business and society, joins that group of inspiring marathoners. But, just as TCS marries technology expertise with a passion for fitness, Bill is tapping into his research to create a custom training program to help him prepare for the TCS New York City Marathon. The question Bill has set out to answer is—can a personal digital twin help an amateur runner complete his first TCS New York City Marathon? Bill is using his digital twin to monitor every aspect of his life, from sleep to diet to training and stride efficiency. With the digital twin in place, AI can run various scenarios to recommend training modifications to optimize Bill's performance based on unique needs and health conditions. Read on to learn more about the range of technologies Bill is using to create his running digital twin—and his view on what could be coming in the future to make running even more technologically advanced. Bill's digital twin plan Bill's plan includes using wearables such as a smartwatch, a fitness band, and a glucose monitor that tracks diet and nutrition. An infographic featuring TCS Futurist Bill Quinn's marathon training, monitoring, and health regimen. These show what's available today and what might be available in the future across topics such as training plan development and tracking, real-time training data, strain and recovery, diet and nutrition, shoe fit, improved health data, proactive pain management, and optimized biological actions. Wearables in action Digital twins cannot exist without high-quality data sources. A running digital twin would require data that can paint a picture of an athlete's performance over time in response to different stimuli and challenges. To accomplish this, Bill integrated the following wearables into his training regimen: Smartwatch: Provides broad training data such as distance, pace, time, heart rate, and more. Fitness band: Monitors recovery, including cardiovascular strain and sleep patterns. Glucose monitor: Tracks diet, nutrition, and the effects on blood sugar levels, which can impact running performance. Enabling AI: AI is an essential ingredient in empowering digital twins to be effective. Bill is using AI as part of his training regimen in multiple ways: Generative AI: Data from the digital twin is fed into an AI platform to help recognize patterns and create ideal responses to various running scenarios. Customized shoes: Based on 3D scans of Bill's feet, customized shoes can be made for an optimal fit, helping to improve performance and durability. Running to a nanobot-enhanced future: Digital twin technology is already transforming industries and providing value to the running community, including TCS' partnership with world-class marathoner Des Linden to create the first-ever digital twin of a long-distance runner's heart. What's next? When envisioning the future of fitness, Bill points to nanotechnology as holding tremendous potential. In the coming decades, nanobots could be installed directly into an athlete's body to provide real-time data of biological functions, deliver medicine on demand, and more. Nanobots will deliver on the full promise of digital twins by enabling athletes, their coaches, and trainers to monitor and act remotely to provide tangible benefits when needed the most. For instance, releasing pain medication at the perfect time to overcome a challenging injury or stressful situation. Bill Quinn and thousands of others are running to the future this November for the TCS New York City Marathon. To see Bill's progress and learn more about the marathon, visit: https://www.tcs.com/who-we-are/sports-sponsorships/tcs-nyc-marathon-technology-app For more information about TCS and digital

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Why embedded insurance is key to closing protection gap

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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. Subha Veluchamy Domain Consultant, Insurance, TCS Asia-Pacific You have these already downloaded We have sent you a copy of the report to your email again. Embedded insurance Asia is home to a mix of mature, growing demographic segments and high growth, developing insurance markets. The region has a significant insurance protection gap in terms of protecting life, health, and other risks adequately. According to a recent survey, the insurance gap in Asia is forecast to widen up to $889 billion by 2025. Embedded insurance, which is best suited for simple and transparent products with a straightforward claims process, is widely considered by the insurance industry players as the most relevant opportunity to tap into new untouched customer segments to reduce this protection gap. Moreover, it could revolutionize how insurance products are distributed, largely by non-insurance brands worldwide. While western markets are more developed, the Asian market is catching up rapidly in this space. The Asia Pacific embedded insurance industry is expected to grow steadily over the forecast period, recording a CAGR of 20.7% during 2022-2029. Embedded insurance is a popular concept and brings in all stakeholders in the value chain, including customers, third-party distributors, and insurers. For end-users/customers The lack of insurance awareness, trust and affordability are the key factors behind the protection gap. Embedded insurance changes these dynamics by coupling real-time insurance offers when a consumer purchases a product. End-users are offered personalized and relevant insurance directly at the point of sale (POS), promising a quick sign-up process and no paperwork. Once a claim is triggered, the process is simple and hassle-free because the data collected is accurate and verifiable. It is then leveraged for faster payout, which is the key driver for end-user satisfaction. For instance, a forerunner in the fintech space in India has promised a two-minute sign-up process and no paperwork for auto insurance. For third-party distributors Asia is experiencing a remarkable surge in insurance technology products (insurtech), aiming to bridge the insurance gap with embedded products. India is the second-largest insurance technology market in Asia-Pacific, accounting for 35% of the $ 3.66 billion insurtech-focused venture investments made in the region. There are many insurtech companies in the APAC market that are raising funds to scale their platforms, providing the infrastructure for product distribution and claim management, and some of them offer technological support for product design, pricing, underwriting, and API integration which needs to be provisioned ahead of embedded insurance product launch. For third-party distributors, it is a new way to differentiate, attract users, and generate new sources of revenue and growth. For example, a pioneer insurtech in China offers delivery protection for the SME sector for just 50 cents. The insurtech has sold over 50,000 policies related to business interruption to small businesses since the pandemic. There are several insurtech players in the APAC market that are licensed by insurance carriers and able to offer insurance-as-a-service and white-label solutions. For Insurers Embedded insurance is both an opportunity and a threat. On the positive side, the availability of IoT data, enhanced analytics, cloud-connected insurance platforms and open APIs gives insurers access to wider base of customer data and insights. This, in turn, opens access to untapped markets and reduces the protection gap. As customers are most likely to buy coverage, it leads to high conversion rates

and lowers customer acquisition costs. On the negative side, they are becoming a trivial capacity provider to non-insurance brands and turning insurance into an even more commoditized business. For example, the biggest embedded insurance provider in China persuaded the government to allow social insurance to be embedded into its Good Doctor platform. Other players launched several "one-click-buy" propositions, where customers can add insurance when they send money to their loved ones, pay a bill, or get a cab ride. The road ahead Embedded insurance is clearly the next biggest wave that will spur significant innovation in the sector. Though embedded insurance solutions fill protection gaps to some extent, they could be more comprehensive and potentially create un- and underinsured risk pockets. Insurers need to scan through product portfolios to find products that could be embedded, assess the ecosystem partners' credibility for embedded insurance fitment and strategize whether to maintain their own brand or accept rebranding. It's an opportunity space to innovate and anticipate more partnerships between insurtechs and insurance companies, which lead to greater insurance penetration. Embedded Insurance Transforming the Way Forward Metaverse in Insurance for Better Operations and Customer Engagement Creating Shared Values and Shared Beliefs for Purpose-led Insurance How Web3 and Blockchain will Disrupt the Insurance Industry 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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Steps to follow while choosing the right cloud ERP

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customization, and ongoing support: It is crucial to evaluate the implementation process to ensure that it aligns with your business objectives and timelines. The implementation strategy usually consists of different steps, including planning, preparation, configuration, data migration, testing, and others. Once you go live, train your staff thoroughly to support your business. Make your business future-ready: Companies should not only focus on the current issues they are experiencing but also future-proof their business. Opting for the right cloud ERP partner is the first step in making their business future-ready. The ERP system you choose should scale, evolve, and grow along with your business needs. Request for a demo: Conducting a demo at the initial stage will help in making informed decisions. To gain a better understanding of the ERP system, don't forget to request a solution discovery session. To summarize, choosing an ERP vendor is a long-term investment. It is similar to a business transaction that will help you scale in the future, for years to come. Choosing the right cloud-based ERP is critical to get the best-in-class ERP solution. To get the best out of it, you should find a service provider that suits your needs, decide and finalize the business requirements, and select the right cloud ERP solution. Investing in the right ERP solution is necessary, as it can help you improve business productivity, streamline business operations, and reduce costs. Doing intense research before entering the market for cloud ERP can make all the difference. IFFCO's business process transformation with SAP S/4HANA TCS' ERP on cloud platform to help wavin drive growth in new markets PreCast: Accelerating Migration and Greenfield Implementation TCS Platform helps Ampleon Use ERP-on-Cloud to Drive Business Agility 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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Learnings from the racetrack: Racing to a sustainable future

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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. Mike Barry Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Mike Barry Strategic Advisor on Sustainable Business, TCS You have these already downloaded We have sent you a copy of the report to your email again. As the eyes of the world turned to London for the final round of the 2023 ABB FIA Formula E World Championship, Tata Consultancy Services (TCS) took the opportunity to shine a light on the role sport can play in delivering a sustainable future. Whilst the Formula E teams prepared for the final race of the 2023 season, TCS gathered a panel of thought leaders to explore the power of sport as a driver of positive, sustainable change. The panel included (see pic below) Julia Pallé, Director of Sustainability, Formula E; Santino Pietrosanti, Director, Head of Global Strategic Partnerships & Corporate Development, Jaguar Land Rover; Hugh Brasher, Event Director at London Marathon Events; Piyali Sen, UK & Ireland Head of Sustainability and ESG Business, TCS; and myself, Mike Barry, Strategic Advisor on Sustainable Business, TCS, as moderator. The discussion exposed several key learnings that can be taken from sport and applied to help organisations and individuals adopt the steps needed to make their businesses, lives, and communities more sustainable. A photo of the panellists in the discussion. They gathered to discuss the power of sport as a driver of positive, sustainable change.   There was a time when the responsibility to encourage change came almost exclusively from scientists, campaigners, and politicians. In a world where the power of sport permeates cultures and borders to inspire emotions and touch lives, the ability of teams and sporting heroes to provide positive examples of change has never been greater. From the world's greenest football team (Forest Green Rovers) to the advocacy of voices from every corner of sport, teams and athletes are waking up to their ability to motivate fans to embrace change. The loyalty of vast global fanbases and the capacity to connect emotionally with individuals gives sport a unique power and responsibility to promote positive change. Whether you're being inspired by Olympians or taking part in a football

match on Hackney Marshes on a rainy January morning, sport can convince and inspire. Sport brings billions of people together. MIKE BARRY The scale of the problem and the changes required to address the climate crisis can leave people feeling powerless despite a desire to act. In addition to the influence it can wield, sport can distil technological breakthroughs from the cutting edge of sport to offer people small, practical steps that can collectively deliver meaningful change. From software updates for I-Pace to the plan to make Jaguar a fully electric brand by 2025, knowledge gleaned from the Formula E track is already helping Jaguar owners transition to sustainable mobility.   Formula E's Director of Sustainability, Julia Pallé, shared brilliant insights into how the sport has imbedded a sustainable culture that influences every decision, from the choice of sponsors to the refreshments available at events. This culture is the driving force behind the pursuit of a genuinely "circular" car. A car in which tyres, carbon fibre and rare minerals from the batteries will all be recycled for use in new cars season after season. The way sustainability considerations are internalised within the organisational culture of Formula E provides a living example to businesses of what a truly sustainable culture looks like and what it can achieve.   Hugh Brasher, Event Director of London Marathon Events, helped the panel explore how the TCS London Marathon has expanded to become the most popular marathon on the planet. The image of real, relatable people endeavouring to do the extraordinary has inspired millions more regular people to get off the sofa and get involved. Every person who runs the TCS London Marathon is an uplifting story of change and motivation. When surrounded by headlines that amplify fear, and with so much of the media narrative focused on the negative impacts of climate change, the power of sport to tell positive stories is invaluable. To incentivise meaningful societal change, we must find ways of making change feel good for every individual and tell the stories of how small actions by many people can make a real difference. Our path to a sustainable future will be a collective endeavour. Every runner in the TCS London Marathon will help someone and will be helped somewhere along the race. The community spirit the event fosters has been critical to its success. Every Formula E fan is united by emotions and shared experiences with fellow fans around the world. The power of sport to bring consumers, communities and businesses together makes it a perfect vehicle for the kind of collaborative thinking we will need to create successful sustainable strategies for the future. There is only so much you can achieve by travelling alone. Collaborations such as those between TCS and Jaguar TCS Racing are already proving what can be achieved by uniting different skills, experiences, and perspectives. If the Formula E track can teach us anything, it is how far and how quickly humans can achieve incredible progress when they come together around a common goal.   TCS London Marathon 2024: Doing our Bit to Build a Better Future Future Athlete Project TCS New York City Marathon Expo Presented by New Balance 2024 TCS New York City Marathon 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

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How sustainability is transforming CX in utilities

----- Arcticle source ----- https://www.tcs.com/insights/blogs/utilities-sustainability-reimagine-customer-experience ----- Industry Rebalance the energy equation Services Accelerate Enterprise Digital Transformation for Sustainable Change Highlights On This Page Prioritizing customer experience A significant transformation opportunity for utilities Product: Shaping a sustainable foundation Experience: Creating sustainable moments of truth Purpose: Empowering a sustainable lifestyle A symbiotic relationship 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. Anindya Pradhan Leading the way in innovation for over 55 years, we build greater futures for businesses across multiple industries and 55 countries. Our expert, committed team put our shared beliefs into action – every day. Together, we combine innovation and collective knowledge to create the extraordinary. We share news, insights, analysis and research – tailored to your unique interests – to help you deepen your knowledge and impact. At TCS, we believe exceptional work begins with hiring, celebrating and nurturing the best people — from all 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. Anindya Pradhan Industry advisor, Utilities Innovation and Transformation Group (ITG), TCS You have these already downloaded We have sent you a copy of the report to your email again. Utilities are reimagining their customer experience. Thanks to prosumer democratization, progressive regulations with sustainability and resilience at the core, the fusion of energy and digital technology, and the convergence of industry boundaries while navigating the energy transition. Although the industry prioritizes customer experience, there remains a

significant opportunity for enhancement. Research highlights that utilities in the US attained an average NPS of 8, notably 9 points beneath the overall average spanning 22 industries. According to a study conducted in the US, electric utilities faced a decline in overall satisfaction scores after the COVID-19 pandemic, attributable to a blend of increasing rates, insufficient communication, and a lack of transparency regarding corporate citizenship endeavors. Sustainability presents a compelling avenue for change and innovation. Within this sector, there exists substantial potential to curtail greenhouse gas emissions and strive toward achieving carbon neutrality, marking a pivotal step toward environmental responsibility. Utilities are taking on new roles and responsibilities that center around sustainability, encompassing initiatives like the electrification of mobility, the management of electric vehicle infrastructure, and the integration of customer-owned energy storage systems. For instance, an energy company in the US offers financial help to customers for purchasing home batteries and sharing the usage, while a leading Australian energy giant offers bill credits if customers share their solar battery energy. This transformation underscores that sustainability is a fundamental component of the utilities' energy transition journey, deeply embedded in their core objectives. The integration of sustainability can also be a catalyst for forging new customer experiences. Utilities can engage with their customers in novel and meaningful ways by prioritizing sustainability and fostering a sense of shared environmental responsibility. This approach creates opportunities for utilities to connect with their consumers on a deeper level, ultimately leading to a more mutually beneficial relationship between companies and their customers. As utilities worldwide focus on enhancing customer experiences through the lens of sustainability, the transformation is centered around three key themes: product, experience, and purpose. Let's explore the interplay between these themes and how utilities are reimagining their customer interactions. The journey toward an improved customer experience begins with utilities defining sustainable products that align with their mission. Here are some innovative product offerings that utilities are incorporating: Managing the demand side with pricing and smart usage rewards: Utilities have been implementing dynamic pricing models such as time-of-use pricing (ToU), critical peak pricing (CPP), and real-time pricing (RTP) for several years now, allowing customers to consume energy more efficiently. Smart usage rewards incentivize consumers to make environmentally conscious choices. US-based energy company, Con Edison propagates a mobile app called GridRewards™ to provide cash incentives to reduce energy usage. Green tariffs: Green tariffs enable customers to opt for renewable energy sources, reducing their carbon footprint. Green tariffs also play a pivotal role in accelerating the transition toward a greener and more environmentally responsible energy grid and aligning consumer choices with these goals. Suppliers who purchase renewable electricity along with its associated renewable electricity guarantee of origin (REGO) certificates from renewable generators offer green energy tariffs. Community solar: Community solar is a popular form of shared renewables that allows customers to harness the power of solar energy even if they can't install panels on their properties, enabling clean energy adoption on a broader scale. In the US alone, there are over 1,600 community solar projects. Once sustainable products are in place, utilities can further enhance the customer experience. This entails introducing and creating new moments of truths for

the customers by reinforcing sustainability throughout the customer journey: Improve understanding: Utilities offer tools like the solar PV calculator, enabling customers to estimate potential savings and environmental benefits when transitioning to solar power. Facilitate adoption: Electric vehicle (EV) adoption is on the rise. Utilities are simplifying the process by providing apps that help customers locate nearby charging stations, making EV ownership more accessible and sustainable. Optimize usage: Utilities offer consumption benchmarking and advice, allowing customers to monitor and optimize their energy usage. This includes gamification among consumers around energy savings, rewarding the consumer for sustainable energy consumption. Reduce charges: Utilities are introducing new ways to reduce charges to encourage sustainable behavior. For instance, a leading Australian energy retailer offers discounted rates for EV users who charge their vehicles after midnight. This not only promotes off-peak consumption but also supports the adoption of green transportation. Reward customers: Initiatives such as bring your own storage (BYOS) and virtual power plant (VPP) encourage customers to employ consumer energy resources (CER) such as rooftop PV, EV, batteries, and pool pumps to connect to the grid and get rewarded. The ultimate goal of utilities is to empower consumers to adopt a sustainable lifestyle and letting them integrate sustainability into their daily lives. This can be done by way of: Smart living: Utilities are creating connected home ecosystems that provide the 3Cs of convenience, control, and choice while maintaining a strong commitment to sustainability. We are also seeing the convergence of industry boundaries in smart homes where utilities can provide adjacent services such as healthcare monitoring. Smart energy and new revenue: Innovative solutions like VPPs and BYOS empower consumers to become prosumers. They can actively contribute to the grid, helping utilities manage peak demand more effectively while generating additional revenue. Smart transportation: With the rise of electric vehicles, utilities are stepping into the world of smart transportation. They offer subscription-based EV ecosystems that provide customers with hassle-free access to sustainable transportation options. This is in light of the EU and UK governments' ban on diesel and petrol vehicles, which was recently pushed to a 2035 deadline. The successful interplay between sustainability and customer experience in utilities can be attributed to several key factors. We are also seeing the convergence of industry boundaries in smart homes where utilities can provide adjacent services such as healthcare monitoring. Progressive regulations have been pivotal in fostering an environment that encourages and rewards sustainability initiatives. The proposed ban on sale of fossil fuel-run vehicles mentioned above, is a classic example. Additionally, establishing the right partner ecosystem is essential in enabling utilities to access expertise and resources that facilitate the integration of sustainability into their operations. Today, utilities are partnering with technology companies to leverage AI and IoT solutions seamlessly to ensure better customer service and, ultimately, deliver on climate change priorities. As utilities increasingly prioritize environmental responsibility, these factors collectively contribute to an elevated customer experience.This is in light of the EU and UK governments' ban on diesel and petrol vehicles, which was recently pushed to a 2035 deadline. Powering change for utilities with cloud and IoT Re-energizing Customer Loyalty at AGL Prosumer at the center: Navigating the energy transition Tata Steel boosts sales with an ecommerce

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Three qualities of a fit marketing organization

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leaders must do more with less. The pressure is forcing them to adjust their budgets and investments and rethink their marketing channels, resources, and programs to make their marketing efforts more effective. Marketing teams large and small are doing what they can to keep up, but is it enough? According to a global study done as part of Reuters' State of Marketing 2023, when brands were asked how effective they are in turning their purpose-driven marketing into action, a majority said either their efforts were not effective at all or were unsure. So, what skills should marketers hone to help their companies stand out and stand the test of time? More than 20 CMOs who joined an event organized by TCS Interactive ahead of the TCS New York City Marathon all agreed on one thing: Marketing organizations should cultivate the qualities of a marathon runner. They need to build endurance, strength, and adaptability to meet any challenge like a well-prepared athlete. For today's CMO, fitness means excelling at different things: being a communications and marketing guru, a creative leader, and now more than ever, a technologist. It requires both creative and analytical skills and calls on the tactical skills they have learned through years of experience. And it entails the ability to support strategic responsibilities related to business growth and their companies' bottom lines. The way forward is for CMOs and their marketing teams to build their fitness with these three qualities: CMOs can help teams build their endurance, strength, and adaptability by employing technology and data. Today, massive amounts of data that can be amassed from various sources and data analytics help marketing organizations better understand customers' behaviors and desires, and optimize experiences for them. But what's also required is more effective use of the technologies in hand and making the right investments in new ones, as well as continuous training for marketers. CMOs also can help their teams be more fit by focusing on harmonizing data and technology with brand and design, two other key elements of marketing. Harmonization requires a holistic approach to marketing initiatives and breaking down silos that exist and divide business units. Marketing can't be done on its own; it requires input from and collaboration with multiple business units across an organization. Further, within marketing departments, the brand team needs to have access to customer data and must be empowered with the latest design tools and technologies.   Harmonization can lead to real-time, orchestrated omni-channel journeys and seamless, frictionless customer experiences. It also can help marketers develop a predictive, forward-looking attribution model that enables a better understanding of each marketing touchpoint leading to engagement with a prospect, who is likely to convert into a customer. Harmonization can also help teams unlock the right answers via data-driven insights that are tested and retested for further refinement. And it sets a solid foundation for an integrated ecosystem and roadmap that future-proofs business. Just as top athletes continually build endurance, strength, and adaptability to become more competitive, marketing organizations who do the same to get in their best shape will be in a better position to stay ahead of competitors and positively impact the business. Embrace Enterprise Fitness: Building a Fit-for-the-Future Business 3 keys for resilience in travel and hospitality Team TCS Teachers: Growing Fast, With No Signs of Slowing Down TCS New York City Marathon: Building Belief Beyond Borders 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

The metaverse: A paradigm shift for HR business leaders

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business leader, understanding and harnessing the potential impact of the metaverse is crucial for staying ahead in a swiftly evolving landscape. This blog explores the transformative implications of the metaverse for HR business leaders, shedding light on opportunities, challenges, and strategies to navigate this new digital frontier. The metaverse is not a distant science fiction concept anymore; it's becoming a tangible reality. It encompasses a collective virtual shared space, merging physical and digital worlds through immersive technologies such as virtual reality (VR) and augmented reality (AR). This digital universe offers endless possibilities, from virtual interactions and commerce to entertainment, education, and beyond. While the metaverse offers myriad opportunities, HR business leaders must be attuned to the following potential challenges: Training and adoption: Introducing the metaverse requires training and adoption strategies. Not all employees may be familiar with immersive technologies. HR leaders should provide the necessary training and resources to ensure a smooth transition to the metaverse-enabled workplace. Digital fatigue, privacy, and compliance: Overexposure to digital environments can lead to fatigue. HR leaders need to strike a balance between virtual and real-world interactions. Additionally, privacy concerns surrounding virtual interactions and data security must be addressed to ensure employees' trust. HR leaders must ensure that virtual interactions adhere to workplace regulations and ethical standards. Integration with existing systems: Seamless integration of the metaverse with the existing HR systems is vital. HR leaders must work closely with IT teams to ensure compatibility and data synchronization between virtual platforms and HR management software. To harness the potential of the metaverse, HR business leaders can adopt the following strategies: Pilot programs: Initiate pilot programs to test the waters. Identify specific use cases within HR functions, such as training or collaboration, and evaluate their effectiveness in a metaverse environment. Collaboration with tech experts: Collaborate with experts in immersive technologies to develop solutions tailored to your organization's needs. Their insights can streamline implementation and maximize the benefits of the metaverse. HR leaders must also exhibit agility and adaptability to stay current with technological advancements and industry trends. Employee engagement: Engage employees in the transition to the metaverse. Seek their feedback, address concerns, and communicate the benefits clearly. Employees who feel involved and valued are more likely to embrace the changes. In conclusion, the metaverse is not a distant dream anymore—it's a paradigm shift that HR business leaders must embrace. By envisioning innovative ways to leverage immersive technologies, HR leaders can elevate talent management, employee engagement, and organizational growth to unprecedented heights. While challenges exist, the metaverse offers a canvas for HR business leaders to shape the future of work, creating a dynamic, inclusive, and interconnected workplace where the boundaries between the physical and digital worlds blur into endless possibilities. How to choose an HRMS solution? OKR – Why is it so vital? Transworld Digitizes HR Processes with CHROMA™ Hire the right talent with AI-driven applicant-scoring 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

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AI for all: The path for social empowerment in India

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amounts of data daily. These put India at the forefront of the AI revolution, where the commitment to using AI for the common good while addressing privacy and ethical concerns can be addressed suitably. With a vast pool of AI-trained workforce, India has a unique opportunity to be a major contributor to AI-driven solutions that can reach the masses and benefit a large section of society. The country also hosts a large pool of AI-trained workforce. Our leading technology institutes have the potential to be the cradle of AI researchers and startups. Adoption of AI will supplement the digital revolution in India across most of the government sectors and enterprises and will facilitate the penetration of technology for the benefit of the masses. The percolation of AI and related technologies within a large spectrum of society and disparate sectors calls for an interdisciplinary approach. Extended AI teams, collaborating across the cognitive and other sciences, will eventually fulfill the mission of "AI for All" in India. The impact of AI techniques can be predicted in the following spheres: Social sciences such as sociology and economics Knowledge Engineering such as linguistics, logic, and predicate systems Neuroscience and biology, including molecular biology, biochemistry, and genetics Physical sciences such as physics, chemistry, material science, and environmental science In the context of India, AI-driven solutions, thus, can revolutionize manufacturing, banking and financial, healthcare, agriculture, education, defense, skill development, and other multifarious sectors that will eventually lead to the path of social empowerment and a technology adaptable by the masses. Three significant areas which AI can transform and touch the lives of the Indian population are narrated in the following sections. Weather prediction: Agriculture is dependent on climate, and so the use of AI for forecasting the weather is the most obvious use case. Crop monitoring using image processing: Use of use satellites, drones, or robots are now predominant to take images of the crop and thereafter, use image processing technology to assess the crop for: Monitoring of pests Determination of current yield size Yield prediction (forecasting) Monitoring soil health: Possible cultivation defects and nutrient deficiencies in the soil condition can be efficiently monitored and conducted by utilizing AI image processing techniques and predictive remedies, e.g., advanced application of relevant herbicides, pesticides, or fertilizer variants can be adopted to prevent crop yield failure. Smart irrigation: The AI system will be aware of historical weather patterns, soil quality, and the kind of crops to be grown. Smart irrigation will ensure that the AI system acts as a mentor to guide the irrigation process, forecast issues, and prescribe remedial measures in time to increase average yields. Disease management: AI makes it possible to access the data and learn from hundreds of thousands of patient cases distributed across the nation. AI may use these large data sets to empower the government and authorized healthcare professionals and healthcare institutions to adequately predict and conduct disease management based on age, geographical spread, immunity, lifestyle, and other dependent parameters. Predicting prognosis: Deep learning algorithms may provide better insights to clinicians in predicting prognosis and future events in patients. Early detection: AI may facilitate early detection of diseases by capturing and analyzing various vitals of patients and therefore, can help in prevention. Intelligent transport systems: With the help of AI, real-time dynamic decisions on traffic flows are possible. A few examples are: Lane monitoring Allocating right of way to emergency vehicles (Police car,

ambulance, etc.) Enforcing traffic regulations through smart ticketing Generation of accident heat maps to ensure extra control and precaution of traffic movements in accident-prone zones. The adoption of AI in the context of India might not be uniform or linear with respect to time but could build up at an accelerating pace in time intervals with periods of sluggishness in between. A slower start due to the substantial costs and investment associated with learning and deploying these technologies and then accelerated adaptation driven by the cumulative effect of improvement in complementary capabilities alongside process innovations with tangible benefits is predicted. To achieve this goal, AI needs to be extensively introduced in all sectors ranging from agriculture, financial services, transportation, healthcare, energy, manufacturing, and logistics to create a vibrant AI economy. This must be adequately supported by the government financially and complimented by inducting awareness and skill among the masses on the benefits of AI adoption. It remains our collective responsibility to ensure trust in how AI is used and the benefits achieved thereof. The key to establishing this trust is by implementing adequate data security measures and the protection of personal data. TCS' ERP on cloud platform to help wavin drive growth in new markets Walking the Path of Cloud Native for Enterprise Digital Transformation PreCast: Accelerating Migration and Greenfield Implementation TCS Platform helps Ampleon Use ERP-on-Cloud to Drive Business Agility 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 =======================

Empowering youth for sustainable change in South Africa

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the country. This year, the theme was "Sustainable Water and Sanitation Management". Water scarcity and sanitation being critical concerns in the region, we received several out-of-the-box creative solutions. We now aim to identify viable and actionable solutions and help students develop prototypes to combat the issues. Beyond awareness, the program promotes STEM education, nurturing the young generation's passion for technology-driven solutions. The program's core purpose revolves around three key pillars— Expose, Inspire, and Enable. Through this framework, participants gain insight into the environmental issues and challenges specific to South Africa. They are inspired to take an active role in advocating for sustainability, leveraging technology as a tool to drive change. Finally, through guidance and mentorship, these young minds are empowered to turn their ideas into reality. What sets the TCS Sustainathon apart is its unique emphasis on collaboration between the student community, private enterprises, non-profits, and government agencies. Together, they forge a formidable ecosystem to drive change and build a sustainable future. TCS recognizes that one organization alone cannot drive significant change. Hence, to amplify the impact of TCS Sustainathon, we have partnered with a range of organizations that share the same drive and passion towards sustainability. In the previous year, partners included top entities such as Pick n Pay, BankservAfrica, Unilever, United Nations Global Compact, and Western Cape Education Department. This year's partners and collaborators were uBuhleBakhe Water™, Geekulcha, MTN, SkillsLab, and the City of Tshwane, demonstrating the power of collaboration in achieving collective goals. The vision behind the TCS Sustainathon extends far beyond a one-time event. It's a commitment to fostering a culture of innovation and sustainability among the youth. By holding this event annually, TCS aims to inspire young minds to build innovative solutions and shape their sustainable future and their communities. In a world that faces daunting sustainability challenges, events like the TCS Sustainathon remind us that the future is in good hands. The youth have the power to transform ideas into actions and create a more sustainable world. Through their creativity, passion, and collaboration, they can turn the tide and drive impactful change, one innovative solution at a time. Champions of Sustainability: TCS Announces the Winners of the 2023 Sustainathon South Africa TCS Sustainathon Challenges Youth to Improve SA's Food Security using Technology TCS Sustainathon South Africa 2022: Winners Pitch Innovative Solutions to Reduce Hunger and Food Waste Empowering Youth to Lead the Charge: TCS Sustainathon South Africa to Tackle Sustainable Water and Sanitation Champions of Sustainability: TCS Announces the Winners of the 2023 Sustainathon South Africa 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 ====================

Young innovators inspire hope for a sustainable tomorrow

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of using their creativity and design thinking skills to solve specific real-world problems, the two winners came to the task well-researched and prepared. Looking for a problem to solve, 11th grader Aishani didn't have to go further than her own school. She recalled her disappointment seeing classmates throwing barely used notebooks, textbooks, and other school supplies in the trash quicker than running out the door for summer break. Thinking of how many underprivileged students could benefit from these typically discarded resources, she used TCS goIT as the motivation to find a better way. She created a website called "A Second Life," which links students and families in need of school supplies and used textbooks to resources available locally —or from further away. It also demonstrates her intention and purpose as a global citizen committed to expanding access to education. Laura's innovation, on the other hand, demonstrated her ability to find purpose in current events and meaning in changing the lives of total strangers for the better. Her innovation seeks to provide services to refugees from Ukraine. Aishani and Laura were two of about 40,000 young people who, in 2022, entered the TCS goIT Monthly Challenge with concepts for innovations that could help address one of the United Nations' Sustainable Development Goals (SDGs). Aishani and Laura's innovations and those of other K-12 competitors couldn't have come sooner. The side effects of the COVID-19 global pandemic have reportedly slowed—and even reversed—progress on the UN's SDGs, making them suddenly seem more aspirational than strategic. Yet, while some adults may be losing hope, youth involvement with goIT and the SDGs proves that the next generation is proactive and focused on helping. As newer generations always have, young people inspire hope for tomorrow. Ironically, some of the momentum for this was created by the pandemic. Among the unexpected benefits of pandemic lockdowns and other hardships, the world of digital technology was transformed—quickly. So, while relying on technology to replace time spent in classrooms and their customary travel to meet friends and family, a generation of youth discovered the empowering possibilities of digital technology and the Internet of Things. We know now, from reports of depression, social avoidance, and a reduction in outdoor time, that the adoption of digital tech wasn't exactly perfect. Yet it helped young people connect, gave them a say, and exposed them to a greater awareness of current events and global issues than they had ever experienced. For curious young people like Aishani and Laura, advances in digital technology and time spent in virtual environments during lockdowns provided an opportunity for great discovery. It helped transform them into global citizens (and digital citizens) poised to benefit society. During TCS' inaugural goIT Global Innovator of the Year competition, enterprising students like Aishani and Laura spent hours inventing and then preparing, creating, and planning so they could present their ideas to IT consulting professionals as well as volunteer judges from TCS and its customer base. Their presentations demonstrated their computational and design-thinking capabilities and their compassion. Proactive and planning for a better world, winners won awards and mentoring opportunities and now have had a glimpse of social entrepreneurship as a real possibility in their lives. Today, these kids—more than 35,000 in 42 countries last year—entered a digital innovation contest. Tomorrow, they will change the world. Learn more here. The goIT Innovator of the Year Award The Future of AI in India: A Revolution in Social Empowerment The Metaverse: Redefining business and HR dynamics

Learnings from the racetrack: Racing to a sustainable future Sustainability Agenda: How Utilities Can Reimagine Customer Experience 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 strong cybersecurity equals good business

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transactions, good cybersecurity practices can have a profound impact on a financial institution's underlying success and overall well-being, providing an edge against competitors. In the latest Big Questions blog, Andy Taylor, Consulting Partner, Risk and Cybersecurity, TCS, explores some of the key business benefits of having a strong integrated cybersecurity risk management strategy. A new approach to address cybersecurity is needed. Viewing cyber risk as an information technology issue falls short. What is required is an integrated cybersecurity risk management strategy involving the resources and activities of the entire organisation. Beyond awareness, everyone has an active role, including business executives, risk, compliance and audit professionals, operational teams, legal and others. Protecting sensitive information is one of the most significant benefits of an integrated cybersecurity risk management strategy. This includes confidential business information, such as trade secrets and financial records, as well as sensitive personal information, such as customer data or employee personal records. By implementing strong security measures and regularly reviewing and updating them, businesses can reduce the risk of data breaches and keep sensitive information secure. Considering the recent personal data breaches in Australia and the financial and reputational damage they have caused, providing customers with the confidence that their data is protected to the best of your organisation's ability is invaluable. With an increasing number of businesses conducting financial transactions online, the risk of cyber-attacks such as credential theft has dramatically increased. An integrated cybersecurity risk management strategy, secure payment methods, and fraud and financial crime detection methods and processes will help prevent unauthorised access to financial information and protect against fraudulent transactions from within an organisation and on behalf of clients. A solid and auditable approach to financial transaction safeguarding will provide a commercial and tangible benefit to clients and customers. Being seen as a leader in implementing exemplary cybersecurity practices can dramatically enhance a business's brand reputation. Customers and clients are no longer willing to risk their business reputations by partnering with organisations that do not take their cyber risks seriously. A successful cyber-attack or data breach can have severe consequences for a business's reputation, including significant negative publicity and an erosion of customer trust, resulting in inevitable extreme short- and long-term financial consequences. Being seen as a leader in implementing exemplary cybersecurity practices can dramatically enhance a business's brand reputation. Customers and clients are no longer willing to risk their business reputations by partnering with organisations that do not take their cyber risks seriously. Good cybersecurity practices can also improve a business's ability to continue operations during a cyber-attack or data breach. By implementing and testing business continuity and disaster recovery plans, companies can minimise the impact of a security incident and ensure that they can resume operations quickly. Trust is the foundation of financial services and maintaining that trust has never been more challenging. Financial institutions are transforming with new digital channels, automation, and other advanced technologies, introducing real benefits and unknown risks. In response, regulators are heavily focused on systemic cyber risk and the contagion across firms and third parties. Regulators also expect financial institutions to enhance privacy protections for customers, who demand their confidential information to be well protected across digitally accessible products and services. Good

cybersecurity practices are essential for modern businesses. Customers and clients place their trust in a company to "do the right thing", and anything less is no longer acceptable. Delivering this trusted relationship engenders loyalty to you as a supplier and improves the longevity of a valued relationship. Excellent cybersecurity should never be seen as a cost to a business. However, it should be seen as a key differentiator between you and your competition. TCS goIT Innovator of the Year: Inspiring a Sense of Hope for Tomorrow TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Future of AI in India: A Revolution in Social Empowerment Sustainability Agenda: How Utilities Can Reimagine Customer Experience 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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Parallels in efficiency and safety: Formula E to healthcare

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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. Smriti Kirubanandan Global Director, Growth and Strategic Partnerships, TCS North America You have these already downloaded We have sent you a copy of the report to your email again. The integration of cloud computing has become a transformative force across various industries. From the racetracks of Formula E to healthcare innovations, cloud technology is powering rapid technological advancements. One notable example is Tata Consultancy Services (TCS) leveraging cloud computing to drive top performance for Jaguar TCS Racing in the ABB FIA Formula E World Championship. This success story serves as a powerful precedent for the potential application of cloud technology in the healthcare ecosystem, where similar innovations could improve safety, efficiency, and quality of care. As we continue to navigate an increasingly data-driven world, integrating cloud computing, data analytics, and insights will undoubtedly play a pivotal role in shaping the future of industries, ultimately benefiting individuals and society. Smriti Kirubanandan The healthcare ecosystem can transform itself with the integration of cloud computing. It holds immense potential to revolutionize patient care, safety, and operational efficiency. TCS' successful implementation of cloud computing with Jaguar TCS Racing showcases the immense potential of this technology to enhance efficiency and safety in various industries, including healthcare, where the parallel application of cloud technology can revolutionize patient care, safety, efficiency, and quality. As we continue to navigate an increasingly data-driven world, integrating cloud computing, data analytics, and insights will undoubtedly play a pivotal role in shaping the future of industries, ultimately benefiting individuals and society. A Strong Cybersecurity Strategy: Forging a Path Forward TCS goIT Innovator of the Year: Inspiring a Sense of Hope for Tomorrow TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Future of AI in India: A Revolution in Social Empowerment 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 factory model to overcome talent challenges in BFSI

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recruitment What next Case in point 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. Darin Hornsby 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. Darin Hornsby Sales Lead, Banking, Financial Services, and Insurance (BFSI), TCS You have these already downloaded We have sent you a copy of the report to your email again. In today's challenging talent market, finding, developing, and retaining experienced resources can be difficult. This is especially true for core platforms in the banking, financial services, and insurance (BFSI) industry, which require both technical and domain experience. BFSI systems such as core banking, payments, claims processing, trading, and asset management require specialized teams. Finding and retaining talent with such specialized skills needed to run business critical systems pose challenges for BFSI firms. We believe that BFSI firms should consider embracing a factory approach to building and developing talent to meet business needs while mitigating the risks of attrition and scarcity of human resources. A talent factory model envisages an overall framework covering aspects such as recruitment, onboarding, and technology and domain training, among others. Embracing such a model can help BFSI firms form teams at scale, with an enabling ecosystem to develop and maintain talent. The talent factory model envisions dedicated teams for recruitment, onboarding, and training. While recruitment teams can help banks and insurers obtain the right talent, an onboarding team will be responsible for ensuring smooth onboarding without administrative delays and glitches. Yet another team will focus on equipping new resources with niche skills in specific areas of banking and insurance. In our experience, many global banks face challenges in finding the right talent to manage

their payment systems. These systems vary greatly, given that banks offer a variety of payment methods such as credit and debit cards, app-based payments (Apple Pay, Google Pay), and real-time digital payments. The rise of new age embedded payment options such as account-to-account, request-to-pay, QR codes, and so on has further complicated this space. Even if banks do find talent with niche skills in payments, the recruitment, onboarding, and training processes are often disruptive, compromising the quality of experience delivered to new employees. BFSI firms are seeking ways to overcome administrative hitches and streamline the talent acquisition process. In such an environment, adopting a factory approach will not only help BFSI firms build a smarter workforce equipped with the requisite skills but also ensure hassle-free recruitment at scale. Training resources in technology and enabling them to gain knowledge in niche areas of the banking and insurance domains is another area full of pitfalls. For instance, finding resources with the right artificial intelligence (AI) skills needed for speedy insurance claims processing or quickly resolving credit card disputes is a tall task. The talent factory approach offers a solution for this—setting up an academy focused on both tracks, with the flexibility to cater to the needs of individual resources. Once new resources are part of the bank or insurance firm, a new question arises: how to motivate and retain talent? This is significant as the cost of recruiting and training a new resource is far higher than retaining an old one. This is especially true given the need for specialized technology skills and domain expertise in areas such as payments and claims processing. The answer lies in defining a structured career path focused on growth to motivate resources. However, even with the best career path in place, attrition is inevitable. To address this, the talent factory model envisions exit plans to identify replacements and mitigate attrition risks, which could otherwise be quite damaging for a firm. For example, if a health insurance company experiences heavy attrition during annual enrollment and is understaffed, it will not be able to manage the high demand and face huge losses, both in terms of reputation and new customer acquisition. A leading global insurance provider was facing challenges such as high attrition and slow execution due to their vendors' inability to supply the right talent. We partnered with the firm in 2022 to ramp up the workforce and built teams with skills across various functions such as insurance brokerage, sales, case management, claims processing, and compensation. The transformation required mobilizing talent at scale (over 4,000 team members) throughout the enterprise. We adopted the talent factory approach and successfully completed the effort within eight months, providing the resources to support about 2,000 applications. Key benefits to the customer included a stable and competent workforce that logged over 163, 000 learning hours and received 97% positive playback session feedback and around 45, 000 person hours saved annually from process improvements. With its ability to deliver niche BFSI talent at scale, ensure employee satisfaction and retention, and build a smart workforce with the capacity to meet evolving business demands, the talent factory model offers financial services firms a proven way to address their talent woes. In our view, BFSI firms must consider this model to overcome their talent-related challenges.   Role of Data and Analytics in Climate Risk Management in Finance Embedded Payments: Addressing the Opportunity to Accelerate Growth Digital and personalized future of merchant services Why Should a Bank do Batch When They can do Real 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 =====================

How to realize your online store value proposition

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your favorite newspaper or your preferred milk brand to your doorsteps daily, they bring a truly focused customer experience for us. Whether it is a cold, foggy morning or a rainy day, you can count on them to deliver. Yes, that's the business value they bring with newspapers/milk. Okay, let's play a quick game. Assume you are a startup online retailer. Now, access any popular search engine and look for comparable products you sell. Got the results? Now, spend 60 seconds analyzing them. The search has thrown up various products from online retailers that your potential customers might like. These items could be similar in quality to yours or better, and others may be of inferior quality. Even if your products come up on top of the page rankings, what is the probability that customers will buy from you? Now ask yourself: "Why should customers buy from me and not from my competitors"? Indeed, you have an answer to that, but is that well-articulated? That is exactly what value proposition is — the most important decision-making argument for customers. If you have strongly communicated your contextual values, you will surely notice significant growth in conversion rate and reduction of customer churn. It's simple. The value proposition is the promise of an additional value to your customers that helps them make a purchase decision. Only by reading that statement can a customer understand the worth of buying from you. That promise differentiates you from competitors. For instance, a headphone maker can promise to deliver noise cancellation, or a pizza chain may promise to deliver within 30 minutes.   Terminologies such as USP, slogan, and value proposition complement each other. A slogan or a tagline is usually a simple, short phrase that summarizes your value proposition, while USP is your unique selling proposition. For instance, TCS' foundation is based on belief, which is well expressed by our slogan, "Building on Belief." Sometimes, marketing teams want to articulate that through a brand logo. Articulating value proposition To successfully sell products online, it's essential to have a deep understanding of your customers' demographics, psychographics, and market segmentation. With this knowledge, you can create a compelling value proposition that sets your business apart from the competition, ultimately driving sales and achieving success.   Customer segmentation: The products you sell may be used differently for different target customers and purposes; accordingly, consider multiple value propositions. A T-shirt may be used as business casual or in sports. A computer designed for students could also be a perfect fit for front-office executives. So, the targeted customer may vary depending on their interests, location, age group, gender, and sometimes even income. A luxury vehicle manufacturer's car models are only for premium customers. Similarly, a famous fashion brand designs their clothing only for women. Multi-channel: As a retailer, you sell multi-branded products, and you must maintain numerous value propositions at every entry point that your potential customer uses--social channels, marketing campaigns, eCommerce homepage, category landing page, search results page, product details page. That message should always be evident to customers irrespective of channels or where they enter your website. Contextual: Your products are the solutions to a customer's needs, and you must mention it. You must specify the challenges you are going to solve or the possible areas your products are going to be used. For instance, a popular apparel and footwear brand may sell only "workout clothes." Sometimes, it is equally important to present statistical information for better articulation for branding, like "8

actions" toothpaste or health drink with "23 vital nutrients". Stay tuned: Keep your eyes open and analyze your competitors, visit their public websites, watch YouTube channels and Facebook pages, and study analyst reports.   There is no standard definition of value; it could be based on the organization, product/service, and or audience. While setting the value proposition of your organization, you should ask what is my definition of value? It will help you understand your strengths and the target group. Your value proposition statement goes deeper into your brand image. With this, you promise your customers to build a long-term relationship. This enrichment exercise is unique to your brand/product and fundamental to your business operation. It provides an evident reason for customers to continue their loyalty to you. Your product manager, marketing department, and creative teams must be aligned with this exercise to bring superior customer experience. TCS Sustainathon in South Africa: Unleashing the Youth's Potential The Role of AI in HRMS Industry Improving content accessibility for people with disabilities Five-point Strategy for Efficient Cloud Operations 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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Boost privacy with six essential steps

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employees have a collective understanding of privacy risks and why certain procedures matter, the company's policies work better overall. Privacy should be championed as a business goal and established as an integral part of a learning curriculum for all parties, including new joinees, as it will ensure compliance for all the stakeholders. Even if leaders claim privacy is a priority and core value, the business still needs an established workplace culture that values and is mindful of privacy. For effective privacy, incorporate talent up to the very top of the organizational hierarchy. To drive company-wide change, C-suite leaders must not only be on board with the privacy strategy, but also engage with and comprehend it. According to TCS' Risk & Cybersecurity Study conducted with over 600 chief information security officers (CISOs) and chief revenue officers (CROs), data protection and privacy is the highest priority for information security leaders and a main investment focus for the next few years. Privacy experts should educate the C-suite on risks, making sure to emphasize privacy as a strategic business goal. In this way, the top executives can better understand the role of privacy and hold it to a high standard. Further, privacy becomes part of the fabric of strategic goals and strengthens customer relationships. Put the customer — whose identity, data, and other valuable information are at stake — at the center of crucial decision-making. Establish privacy as the default position, integrate timely and appropriate alerts for users related to their privacy options, and design all privacy systems prioritizing user convenience and security. As with any policy, it matters who implements it. An essential part of any privacy agenda is a team of leaders, specialists, and others who understand regulatory requirements and know how to build privacy solutions. This cannot be achieved through trainings and seminars alone. As seen with security by design, developers may not have a natural sensitivity toward certain cyber threats. The privacy by design approach deserves a dedicated, trained group of professionals who are empowered to ensure regulations are followed and data remains secure. These professionals can be attained by seeking out, recruiting, and developing trained privacy experts to identify vulnerabilities and monitor regulations. Privacy awareness should be an essential competency for incoming team members, especially roles in product development, customer care, and leadership. The increasing need for strong privacy requires both top-line attention and a built-in systematic approach that considers things like different market regulations and educating talent on privacy. With the ever-growing array of cyber threats, business leaders must prioritize data privacy to legally, safely, and effectively derive value from their data collection. Note: A version of this article was originally published on CPO magazine. Protect your data with TCS' data security services Digital Forensics and Incident Response Services Enhance cyber resilience with zero trust security Eliminating the C-suite's cybersecurity blind spots 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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Thinking of data monetization? Put security first

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unaddressed, it can put the free flow of data between data monetization players—entities such as data governance intermediaries that support the monetization workflow—at risk. Another concern is that the absence of appropriate security measures makes large databases used for data monetization more vulnerable to attacks. Safeguarding sensitive information like personal identifiable information (PII) is critical to avoiding data breaches and cyberattacks. Increased global and regional data privacy and protection regulations have also put pressure on companies to be compliant. If not, they can miss opportunities, damage their reputation, or open themselves up to lawsuits or fines. Hence, the privacy and security of data need to be considered when companies define, build, and operationalize their data monetization models.   With heterogeneous, complex infrastructures and stringent compliance, and regulatory requirements, data security has gained utmost importance. To address data security challenges in IT infrastructure, organizations need to put in place the following: Our data monetization approach offers a strategic roadmap and aligns the organization with a data handling model. In this section, we expand on the measures mentioned above to provide a detailed perspective of an organization-specific planning tool. It details the decisions, processes, activities, systems, and metrics for the development of data monetization as a business discipline. The following are the key components: The strategic framework, combined with adequate security controls, can secure data monetization. No doubt, data monetization can be of significant value to organizations. But to get there, they need to assess their data security posture. With adequate security controls in place, they can make use of vast data assets for data monetization in an ethical manner. And to derive optimal benefits from data monetization, they need to adopt advanced technologies for data protection and periodically review achievement of their data security goals. Addressing Complex Data Privacy Needs with TCS' Data Security Services 7 Key Factors to Build Efficient Enterprise-wide Cyber Resilience Enhance cyber resilience with zero trust security Toward Enhanced Cybersecurity of IoT Devices 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 value chain complements supply chain in manufacturing

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to sell to market or directly to institutional customers. It is more of the operational tasks to be carried out in order to support the end-to-end manufacturing process cycle. The below figure represents how value chain and supply chain can complement each other. Manufacturing: Traditional supply chain vs value chain The supply chain and its associated functions contribute significantly to the evolution of the manufacturing industry across regions, generating intelligence from the data collected in the plant. The traditional approach was outdated by the emergence of cognitive principles such as Just-in-time and lean manufacturing to bring cost sensitivity within the process. The dynamic characteristics of supply chain factors including raw materials sources, shifts in market behavior, diversified business footprints, operational cost and constraints, competition, unskilled workforce, green regulations, and many more play a significant role in configuring the business rules of supply chain application. The success of the outcome from execution is dependent on how diligently these critical changing parameters were factored and weighed throughout the execution stages. The value chain events and activities put focus on the technology adoption across the series and help to strengthen business excellence, quality of products and services, and customer experience. The key impacts are: Most organizations raise concerns over increasing production cost and sub-optimal utilization of critical assets. The value chain contributes significantly to build the correlation between the applications and their functional modules through seamless data and information exchange in a boundary-less environment. This integrity measures the degree of success in all the defined key performance indicators (KPIs). Hence the value chain elements are required to be well thought of and aligned with the objectives. Linear supply chain Here are some of the major activities in a linear supply chain model. As described in Figure 1, a value chain deals with adding the characteristics in the manufacturing of the products or services that yields a tangible effect on its operational value. The value is required be quantified in the perspective of different parameters. Figure 3 shows the various activities in an integrated value chain: Compliance matters Manufacturers need to follow adequate measures to comply with regulations. There are incidents of governance shortfall, manual supervisions, deviation from green laws, compromising employee safety rules, and many others. A well-defined regulatory structure should be at the epicenter of operations to avoid unwanted risks and hazards. The way ahead With the emergence of autonomous manufacturing blessed with Industry 4.0 digital capabilities, the traditional linear value chain and supply chain demand certain redesign toward the connected multimodal structure. Instead of sequential material movement from sourcing to distribution, it needs cross functional integration throughout the manufacturing journey and a multi-dimensional flow can bring the quintessential value to make the differentiation in a highly competitive environment. 21st-century neural value chains — Heralding the future of manufacturing Digital supply chain: Enabling transformation and revenue growth 21st-century neural value chains — Heralding the future of manufacturing 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

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Data clean rooms to redefine advertising for telcos

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with relevant content while respecting their privacy rights, creating a more responsible and effective advertising ecosystem for telcos. It is essential to know what comprises first-party, second-party, and third-party data to understand how data clean rooms work. First-party data is collected directly, both offline and online. This data comes from authenticated user consent through billing transactions, user accounts, and browsing history on websites and apps. Second-party data refers to the transfer of first-party data from one company to another through partnership or agreement. Third-party data, which contains a variety of data sets, including user location, online interactions, and purchase history, comes from data aggregators. The advertising landscape has shifted in recent years, given the de-prioritizing of third-party data. The spotlight lies on decentralized solutions as the industry seeks new avenues to deliver personalized experiences without compromising privacy. Delivering personalized services while respecting user privacy can be challenging in the telecom industry. Telcos rely heavily on customer data to create tailored offerings. Keeping privacy regulations and growing consumer concerns in mind, privacy-enhancing technologies are becoming increasingly popular as they allow telecom companies to utilize customer data while safeguarding personal information. While there are many kinds of PETs, these are the most prominent types: Data clean rooms combine multiple PETs to ensure that data never leaves the native location and is not centralized, preventing misuse and leakage. Federated analytics and distributed ledger technology enable processing and data audit trail, leading to transparency and compliance. A major challenge for the telecom industry lies in first-party data monetization. Telecom operators possess vast amounts of valuable customer data, but leveraging it requires several safeguards. This is where data clean rooms can provide a privacy-compliant framework by facilitating controlled data collaborations, enabling insights without exposing raw data. Data clean rooms ensure compliance with privacy laws while unlocking new revenue streams. Telecom companies worldwide are becoming publishers by investing in advertising businesses, leveraging first-party data to drive ad-sales revenue. Data clean rooms ensure compliance with privacy laws while unlocking these new revenue streams. Telcos must learn to use data clean rooms to better connect with their audience. Brands are increasingly investing in first-party data for which data clean rooms are fast emerging as the solution. Many new-age audience networks want to monetize the first-party data they own, helping advertisers secure audience engagement and data collaboration partnerships. Telecom companies can facilitate first-party data-based partnerships, inviting other brands to advertise on their channels. Search advertising and social media controlled digital ad spending for over a decade. However, their dominance is fading due to privacy apprehensions and regulatory interventions. Third-party cookies and device identifiers are discouraged to comply with data localization requirements and ensure data privacy. This presents an opportunity for telcos to set up alternative audience networks. The new-age audience networks can curate cohort audiences, identities, ad inventories, channels, and platforms. Brands now leverage first-party data that has authenticated user consent to attract advertisers. CSPs have two clear revenue opportunities: first-party data monetization and creating a new revenue stream through ad sales. Data clean rooms are the answer to fostering the necessary trust, transparency, and compliance. Digital audio advertising: A winning strategy for attracting

customers Blockchain Advertising to Transform Digital Advertising Value Chain | TCS Navigating Advertising Complexity in an Over-the-Top Content World Customer Data Ethics in the Age of AI and Social Media 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 manufacturing tech trends to watch out for in 2024

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Excellence Group, Europe Manufacturing You have these already downloaded We have sent you a copy of the report to your email again. Manufacturing is no longer about just making products. Business operations have fundamentally changed due to a shift in consumer demand, the nature of products, the production process, and supply chain dynamics. In today's ever-evolving world, customers are demanding personalization and customization, and the gap between consumer and creator continues to blur. To remain competitive, businesses must adapt to the collaborative ecosystem approach. By orchestrating the right data, skills, technology, capabilities, and insights, business can spark innovation, reduce costs, and create maximum value for themselves, the market, and their customers. Following the global pandemic, the manufacturing sector took a big leap in a positive direction. By 2025, 25% of chief information officers (CIOs) will also have the role of chief ecosystem officers, orchestrating information technology and business across their ecosystem to meet customer needs and lower cost of ecosystem participation by 25%, as per IDC.1 Meanwhile, the industry is making a generational shift from machine-based assembly lines to smart factories that incorporate robotics, the Internet of Things (IoT), data analytics, augmented reality (AR), and other technologies. The integration of the physical and digital realms has enabled real-time analysis and control of manufacturing units across the value chain and opened new avenues and challenges. Here, we will delve into the top five technology trends that will shape the manufacturing industry in 2024. AI has the potential to revolutionize multiple facets of manufacturing. That includes production design, aftermarket services, and supply chain operations. Its application in predictive maintenance will allow manufacturers to operate with minimal or zero unplanned shutdowns. Cognitive assistants, for example, might supervise intricate tasks such as assembly line monitoring or machine inspection. The automation that we are currently experiencing with smart home products such as Google Home and Amazon Echo is just the beginning of what artificial intelligence (AI) can accomplish. While we may be approaching the era of self-driving cars, AI will play a wider role in the realm of manufacturing trends. The market size of AI in the manufacturing sector is expected to be about $21 billion by 2028, up from just $3.2 billion in 2023, at a CAGR of more than 45%. AI offers a solution to the need to swiftly analyze vast datasets. Extracting valuable or actionable insights from this data holds the key to optimizing production, scheduling maintenance, and managing assets. Generative AI (GenAI), a subset of AI, can further transform the manufacturing sector. Siemens' Industrial Copilot is a collaboratively created AI assistant to enhance human-machine cooperation in manufacturing. Automakers, such as General Motors, are using generative design algorithms to optimize parts and reduce weight in their vehicles. After the algorithm produces several design options, they are assessed and chosen based on how well they function in a simulated scenario. The components, thus, are stronger, lighter, and cost-effective. Digital technology can provide manufacturers with greater visibility into energy consumption, production processes, and equipment wear-and-tear. According to the World Economic Forum, one-fifth of the world's carbon emissions come from the manufacturing and production sectors, which consume 54% of the world's energy sources. Several Fortune Global 500 companies are already committed to going carbon neutral, and one-fourth of them have committed to reaching carbon neutrality by 2030. Manufacturers

need to evaluate their supply chain and seek opportunities to reduce waste, increase supplier diversity, and prioritize the use of fuel-efficient vehicles on the factory floor and for delivery of raw materials and products. Some manufacturers have begun to invest in smart building technologies such as sensor-controlled heating, cooling, and lighting systems, which reduce energy needs; some are pairing those efforts by using renewable energy sources for their facilities. Using digital capabilities to implement lean processes has increased production, created safer workplaces, and decreased costs. Digital technology can provide manufacturers with greater visibility into energy consumption, production processes, and equipment wear-and-tear. Organizations then can use this data to maximize production and enhance predictive maintenance to lower energy loads and minimize material and water waste - the key components in achieving sustainability goals. This is crucial, as energy efficiency improvements are increasingly being mandated by licensing authorities. Metso launched over 100 Planet Positive products to reduce carbon emission, reduce pollution, reduce water consumption, as part of their sustainability efforts. With the launch of its data center suite, Honeywell unveiled a collection of software programs that help data-center owners and managers boost operational expenses, worker productivity, the health of critical assets, and operational costs while enhancing visibility into sustainability key performance indicators (KPIs). Manufacturers can create a private 5G network on their premises, which will give them superfast, cable-free connectivity, and improved data security. Complementing industry 4.0, industry 5.0 takes an all-encompassing approach and is the next stage of manufacturing evolution. The goal of industry 5.0 is to boost resilience and improve sustainability, while also improving the work environment's quality. Collaborative robots (cobots), which assist humans on the shop floor and digital twins, which are virtual representations of a real-world process, are integral to this evolution. Thus industry 5.0 meets the central idea of human beings in the production process, supported by technology. Enterprises, however, will need to plan investments wisely, because these changes require smart machines and highly skilled employees. Accel Atoms, an Accel initiative that is aimed at fostering and supporting early-stage startups, has announced a dedicated cohort aimed at supporting visionary founders developing Industry 5.0 innovations that can shape the future of manufacturing. Rockwell Automation made a strategic investment in Swiss company Momenta's Industry 5.0 Fund that develops sustainable and human-centric industrial technology of the future. Automotive manufacturers, such as BMW and Ford, frequently use cobots for gluing and welding, greasing camshafts, injecting oil into engines, and performing quality control inspections. 5G network technology will enable manufacturers to easily connect their assets leveraging IoT technology. That will enable data collection and data processing within devices such as smart machines and sensors (also referred to as edge computing). Manufacturers can create a private 5G network on their premises, which will give them superfast, cable-free connectivity, and improved data security. Edge computing complements 5G by processing data closer to the source, which reduces latency and improves responsiveness. That helps in quicker decision-making, enhanced automation, resource efficiency, and smart factories. Mercedes-Benz, with Telefónica Deutschland and Ericsson, is setting up the world's first 5G mobile network for automobile production at its Factory 56 in Sindelfingen.

More than one-third industrial organizations will have to deploy private LTE or 5G networks by 2028 to at least 30% of their operational sites to reduce up-front costs and improve data collection, as per IDC.2 Integrating metaverse into manufacturing has the potential to revolutionize operations and streamline supply chains. Extended reality technologies such as augmented and virtual reality (AR and VR) will play a crucial role in manufacturing. The metaverse, with its immersive and interconnected digital environment, can facilitate collaborative design, virtual prototyping, and remote operations. These technologies are transforming traditional manufacturing practices, spurring innovation, and improving efficiency. NVIDIA launched omniverse cloud services for building and operating industrial metaverse applications. Users can design and collaborate on 3D workflows with a single click, without the need for any local computing power. Nokia is collaborating on industrial metaverse applications, such as digital twin technology, with organizations such as Dassault Aviation. Additionally, the technology may reduce the need for training equipment. Furthermore, the introduction of the Siemens Teamcenter software integration with Microsoft Teams will facilitate the industrial metaverse by streamlining the virtual collaboration of frontline workers, design engineers, and other teams across various business functions. Manufacturers need to be in sync with these technology trends, going ahead. Leveraging these will help them optimize operations, address supply chain problems, reduce costs, improve customer experience, and adopt a sustainable business process. Reshoring offers an opportunity to build resilience, mitigate supply chain risks, and prioritize carbon neutrality which will contribute to a more sustainable world and attract eco-conscious consumers. It will also help manufacturers to position themselves as industry leaders, shape a prosperous future, and maximize enterprise value. 1. IDC, IDC FutureScape: Worldwide Manufacturing 2024 Predictions, US51276023, October 2023. 2. IDC, IDC FutureScape: Worldwide Future of Operations 2024 Predictions, US48535322, October 2023.   Leveraging Industry 4.0 Technologies for Zero Waste Manufacturing Transforming Product Engineering with a Strong Business-IT Alignment TCS Helps Henkel Implement a Digital Order Management System Industry 4.0 and the digital twin: Smart manufacturing beckons 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 CSR programming gives new meaning to "good sport"

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careers. Through goIT and its innovation competitions, students develop a sense of compassion and global citizenship while seeing themselves as we see them—future leaders. These events put young people on stage, highlight their intelligence, and show them what they're capable of. Participating students at the 2023 goIT Student Innovation Challenge at the TCS New York City Marathon represented five area schools: To prepare for the big event on November 3, the teachers implemented TCS' industry-developed goIT curriculum in their classrooms. It empowers educators so they can expand their students' worldviews, problem-solving skills, and design-thinking capabilities. The winning group of students came from John Adams Middle School in Edison, New Jersey. This team proposed EcoTrack, an app that would use a point-reward system to motivate users to reduce their carbon footprint. Its features include EcoMap, a GPS tool that suggests the shortest travel distance, and a carbon footprint calculator. A Leaderboard feature would allow users to compete for points for using green transportation such as biking, walking, or ridesharing. They were awarded the opportunity to hold the finish line tape for the TCS New York City Marathon's women's wheelchair champion. All students who participated in the goIT Challenge at the 2023 TCS New York Marathon demonstrated curiosity, hope, and positivity. Ingenuity can create positive and lasting change. It also gave us a special moment in TCS New York City Marathon history and a vibrant portrait of optimism for the future. TCS Amsterdam Marathon App: A Game Changer for Athletes and Spectators TCS Lidingöloppet: Powering the Official Race App TCS Toronto Waterfront Marathon: Sustainability at the Forefront TCS World 10K Bengaluru 2023: Running as a Community 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 =====================

Maximizing HRMS ROI: Proven insights

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Transform the future of HRM

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Why futurists are optimistic about AI's impact on work

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techno-optimist believes that technology can continually be improved and can improve the lives of people, making the world a better place. If you are a techno-optimist, you think technology has consistently improved our lives for the better and is likely to do so in the future. In considering societal problems, you feel that the solution lies in technological innovation. On the other hand, a techno-pessimist is likely to believe that modern technology has created as many problems for humanity as it has solved. The pessimist believes that seeking more technology is likely to bring about new problems, unforeseen consequences, and dangers. Given that the pessimists see technology creating its own problems, their answer to human progress often lies in a reduction of technological dependence rather than an expansion of it. Techno-pessimistic thinking has increased over the past year as Generative AI advancements have sparked a new wave of AI speculation. As we see the growing capabilities of AI to create content and automate processes in a more human-like way, a question at the top of everyone's mind is, will this AI era be good or bad for work in future? The TCS futurists set out to answer this question in a study, "Working Towards the Future," which analyzes survey responses from prominent futurists, executives, and foresight professionals around the world. Participants answered quantitative and qualitative questions to inform a vision for AI and the future of how we will work across industries and job functions in the coming years. The study found that 90% of surveyed futurists are optimistic about the changes AI will bring and nearly half of them are "very optimistic". When it comes to working in the future, techno-optimism wins out. The full report highlights findings that range from how AI assistants will help employee health and wellness, how dangerous or physically demanding jobs will benefit from an AI "spider-sense," why entry-level jobs will look completely different, and the industries that will see the first positive transformations in work, with marketing and communications, healthcare and education, banking and financial services, and IT and software development leading the way. The study found that 90% of surveyed futurists are optimistic about the changes AI will bring and nearly half of them are "very optimistic". When it comes to working in the future, techno-optimism wins out. Here are some of the findings of the "Working Towards the Future Report". To download the full report, please click here.   TCS AI for Business Study Key Findings TCS goIT Challenge: Filling Gaps of Sports Sponsorship CSR Activities 5G Technology to Smart Factories: Manufacturing Tech Trends for 2024 Digital Twins: Rehearsing the Future 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 Pace Port™ Toronto — forging innovative solutions

Industry TCS Pace™: Speedier Digital Transformation & Innovation in Business On this page Spotlight on TCS Pace Port™ Toronto Tata leaders at the TCS Pace Port Toronto A design thinking session in progress Inside the TCS Innovation Showcase 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. Pallab Datta 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. Pallab Datta Head, TCS Pace™, Canada You have these already downloaded We have sent you a copy of the report to your email again. Highlights The innovation edge Innovation has always been the master weaver in the ever-evolving tapestry of the modern-day world, intricately threading the fabric of daily life with the golden strands of possibility. Fueled by the latest technological advances and guided by TCS' renowned innovation framework, TCS Pace Port™ Toronto opened its doors in July 2022. And now, halfway through its second year, let's look back at just how much we have accomplished. The dynamic TCS Pace Port Toronto team has worked closely with counterparts in the Canadian innovation ecosystem to provide clients with comprehensive solutions for challenges such as fraud detection and improving customer experience. During a busy first year, the team visited start-up boot camps, attended seminars and events, participated in university events, judged hackathons, and partnered

with several local and global entities. These solutions not only serve a commercial purpose for TCS customers, but also function as a vehicle to create and deliver value for consumers, society, and communities. Making an impact Check out some recent and current projects where innovation, technology, and business intersect to make a difference to our customers, their customers, and beyond. Here are some exciting initiatives on the horizon that will address several pressing societal concerns and how to use technology, particularly AI, to help alleviate them. For example: This photo shows the Toronto Pace Port team hosting a vibrant set of leaders from various Tata companies across multiple sectors who had gathered to discuss building a better future for Canada Photo of a design thinking session with race organizer Canada Running Series and other partners to innovate ways to help the TCS Toronto Waterfront Marathon become the most sustainable race in Canada A photograph showing a presentation in progress on TCS' Agile Innovation Cloud model and discussion inside the TCS Innovation Showcase at TCS Pace Port Toronto. Problem? No problem In many cases, this is where it all begins—the customer comes to TCS Pace Port with an issue, often an atypical one, and the team gets to work on the solution. The first step is conducting a preliminary discussion to lay out the customer's pain points and potential desired outcomes. The team then begins laying the groundwork for drawing on our contextual knowledge and leveraging TCS' vast ecosystem to reach those outcomes. And that ecosystem is one of the things that sets TCS Pace Port apart from other innovation hubs. With a dedicated space in all facilities for bringing university students and faculty, start-ups, technology partners, and TCS experts together to ideate and co-create, collaboration and collective knowledge are built into the Pace Port experience. The result is that no matter how complex the problem is, we will assemble the perfect cohort of experts to solve it. Making progress, together The TCS Pace Port Toronto team has been hard at work to make the second year even better than the first In addition to attending events as participants and judges, the team is now developing and hosting its own initiatives. In early November, TCS Pace Port Toronto partnered with Microsoft to host a first-of-its-kind Generative AI Hackathon for members of the Large Credit Union Coalition (LCUC). The LCUC has more than 2.8 million members across Canada and holds $150 billion CAD in assets. This hackathon was designed to revolutionize financial services within the credit union system by harnessing the transformative power of Generative Artificial Intelligence (GenAI), with a special focus on the renowned GPT-3.5 and GPT-4 models. More on GenAI The TCS Pace Port Toronto team has co-created a unique blend of use cases for the insurance industry, which can be easily contextualized for customers with the help of experts and prompt engineers. We also showcased a GenAI perspective to our key utility clients in Canada and North America, crafting a proof of concept for an Alberta-based utility and unlocking a world of potential for various aspects of its operations. A look ahead We at TCS Pace Port Toronto look forward to charting more exciting plans for existing customers and entering promising partnerships with new ones, and we hope you will join us. How Generative AI is Revolutionizing the Enterprise Landscape Robotics internship at TCS Japan TCS Pace Port™ New York: Building a Culture of Research and Innovation TCS Inaugurates Pace Port™ Toronto to Help Customers Scale Innovation Programs with Digital Technologies 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 Australian businesses can combat cybersecurity threats

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cyberattacks are becoming more sophisticated and frequent. Hackers are using advanced techniques and tools to breach security systems, and the potential impacts of these attacks range from financial and reputational loss to national security threats.   To combat such threats, organisations need a comprehensive cybersecurity plan that addresses potential vulnerabilities and threats. This article discusses how enterprises can discover, assess, and mitigate risks and be cyber resilient. According to the Australian Cyber Security Centre (ACSC), there has been a significant increase in cyberattacks targeting Australian businesses and individuals in recent years. In FY 2022-2023, on average, a cybercrime was reported every 6 minutes. Nearly 94,000 cybercrime reports were received by ACSC, an increase of 23% from the previous financial year. With expanding threat perimeters in the digital world, cybersecurity is no longer just about compliance and risk mitigation—it is a growth imperative. Despite years of investment in cyber risk assessment and security tools, many chief information security officers and chief risk officers feel they need more support and resources to meet current and emerging cyber threats. Protecting their organisations from a rising tide of cyber threats requires adopting innovative and advanced security technologies to protect data and the integrity of business operations. But just as important, it requires engaged leadership, strategically aligned stakeholders, and continuous employee cyber awareness and education programmes to fight off critical threats and recover quickly when such attacks occur. Let's explore some core principles and approaches to building an efficient, effective, durable, and resilient cybersecurity strategy. Risk comes in many forms, but cybersecurity measures must account for local and industry-specific contexts. Some of the factors to consider are: Geopolitical and geographical: Multinational organisations must assess cyber risks in each local market to identify and prioritise their cyber risks pertinent to such markets. It enables multinationals to plan investments and cybersecurity strategies to address risks arising from the unique cyber threat landscape in different countries and comply with their privacy and data protection laws. Regulatory complexity: Legislation in Australia has resulted in increasingly stringent regulations around data security. Rules governing the response to cyberattacks and when to report a data breach can vary in each state and territory and are managed by local government agencies. Cybersecurity experts need to know what technologies and services to pick to combat various threats. The effectiveness and efficiency of these technologies depend on what problem an organisation is trying to solve. Some organisations may require vulnerability detection and remediation, while others need a greater focus on vendor risk. Depending on an organisation's geography and industry, a focus on consumer privacy may be paramount. Either way, the solution often rests on using suitable security technologies. While enterprises focus on protecting their e-commerce applications, they must also safeguard the related development ecosystems, such as cloud and its main delivery models—Infrastructure as a service, platform-as-a-service, and software-as-a-service. Having a tested and assured method for this requires systematic compliance and automation. Setting this up at scale and building it in the necessary repeatable level of capability is an ongoing exercise that often causes concerning gaps. We believe the right solutions for one organisation 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. Cybersecurity depends on a two-fisted defence mindset in a threat environment defined by the new and never-seen-before. TCS Pace Port™ Toronto: Forging a Path of Innovation Why are futurists optimistic about AI's impact on work? Embracing Fluid Workforce, ESG & DEI Principles in Modern Workplaces TCS goIT Challenge: Filling Gaps of Sports Sponsorship CSR Activities 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 ======================

Gig economy: Rewriting the HR framework

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TCS. Discover our press releases, reports, and company announcements. Madhura Kulkarni Head of Marketing, TCS Chroma You have these already downloaded We have sent you a copy of the report to your email again. The era of the new normal brought unprecedented changes in how we function at work. The need to focus on self and well-being became a priority for many employees, forcing enterprises to adopt newer working models that allow more flexibility. Owing to the blurred digital boundaries, the recurrence of the concept of the gig economy started seeking global attention. The gig economy, also known as the "freelance," "on-demand," or "sharing" economy, is a labor market characterized by temporary and flexible work arrangements. It involves individuals working as independent contractors, freelancers, or on a project-by-project basis, often through digital platforms and apps. Gig workers are not traditional employees; they have greater autonomy and are typically paid for specific tasks or services they provide. The working style of some cab service providers, where a driver is at will to accept/reject a service request, is a perfect example of a gig worker. A similar work pattern is predicted for the future across work domains. Some are adopting gig work patterns across the globe owing to the accrued benefits of autonomy, availability of talent pool, optimal utilization of resources, and better work-life balance. If the platform economy expands substantially in the future, the risks associated with such short-term gigs would also threaten the overall work culture, such as long working hours, lack of legal protection, brittle occupational safety and health (OSH) policies, and so on. Let us look at the implications of the gig economy on working style. The gig economy can have several implications: While this working model can have implications, the fact that we anticipate the gig economy's wider adoption is owing to its benefits both for the employees and the employers. Let's look at these benefits at large. Organizations can benefit from the gig economy in several ways: There's a growing number of global workforces engaged in this working style; the gig economy is likely to continue evolving: As HR policymakers, we must consider the following factors to remain prepared for this new working model. Recent times have shown us that adopting any new concept has a short timeline and high clout. With the mass resignations that swooped several economies, it isn't wrong to predict that the gig economy, too, may see a sudden influx, which can significantly impact human resources in several ways. HR must adopt new strategies, policies, and tools to manage and engage gig contributors while conforming to legal and ethical standards in a dynamic work environment. Objectives and Key Results: Embracing change in performance assessment Things to Consider While Choosing an Effective HRMS Solution BFL leverages TCS CHROMA™ for seamless HR transformation TCS CHROMA™: A Cloud-based Talent Management 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 =====================

How enterprises can get an edge with edge AI

From improving customer experience to meeting sustainability goals, edge AI can help enterprises drive business outcomes. With the Internet of Things (IoT) and the massive amount of data generated, the potential for enterprises to draw actionable insights for real-time responsiveness is huge. However, this requires more computing power, greater system performance, robust networks, and higher bandwidth. Enterprises must first address challenges such as network latency, bandwidth issues, and data security. Edge AI, which combines the power of edge computing and artificial intelligence (AI), holds the answer. It can help enterprises run machine learning tasks directly on resource-constrained edge devices and make decisions quickly at the edge of a network. In other words, enterprises can truly get an edge with edge AI. Edge analytics is projected to reach $47.4 billion by 2030, growing at a compound annual growth rate of 24.9%. There are numerous applications for edge AI. Some of

them are: We see three things emerging as driving forces behind edge AI adoption. These are: Edge-native is the way forward. Enterprises mostly implement edge AI as an extension to their cloud solutions with AI models trained on the cloud and time-critical inferencing executed at the edge—what some call a cloud-out strategy. However, some take an edge-in strategy—adopting edge AI with applications and services developed specifically for the edge, along with some support services in the cloud. Cloud out or edge-in, a strategic, consistent, and enterprise-wide approach is a must to accelerate edge AI deployment and extend the value derived from the technology. Also, an edge-native mindset—with infrastructure and applications that leverage cloud-native principles while considering the unique characteristics of the edge—can bring out the best of the edge and AI. Robust processes, ethical practices, and edge-native solutions are key to success with edge AI. Enterprises embracing edge AI often face challenges such as managing and governing data in a distributed environment and achieving optimality between data volume, model performance, and hardware capacity. Security challenges related to data, hardware, software, and applications caused by dynamic changes and distributed scale, and compliance requirements for individual edge locations are other complexities. To accelerate their edge AI deployment and extend the value of their investment, businesses need to: Edge AI is expected to evolve quickly and play a key role in driving business innovation. Enterprises focused on growth and the future would do well to edge in now with edge computing, AI, and cloud. TCS Edge Computing Services Why 5G and edge computing are key to retail success Pushing the boundaries of edge computing TCS CHROMA™: A Cloud-based Talent Management 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
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Grid modernization using next-gen spatial information

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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. Figure 1 Palanisamy Subramaniam 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. Palanisamy Subramaniam Senior Consultant, Energy, Resources and Utilities You have these already downloaded We have sent you a copy of the report to your email again. Traditional distribution networks transfer the centrally generated power in bulk from the transmission system to downstream consumers. This conventional design is unable to support microgrid management and a coordinated ecosystem, leading to transmission and distribution (T&D) losses and challenging the grid's stability. Moreover, consumers demand energy from renewable resources, and regulatory authorities need utilities to upgrade technology, and meet decarbonization, green energy, and safety standard requirements. Digital transformation is essential for a sustainable network, which is the vision for utility companies. It will help to operate the grid securely and enable companies to achieve business values, meet KPIs, ensure employee and IT security, and address business challenges. Utilities benefit from implementing an active distribution system for analyzing the source of power from fossil fuels vs renewable energy resources. Utility companies encourage customers to run energy-intensive machines during off-peak period where power generated from renewable sources are available for consumption. A next-gen network which is an active distribution system will offer greater flexibility to switch the source by coordinating between the demand and supply across electricity network. In the last few decades, the utility industry has relied on geometric networks to model their real-world infrastructure.   These networks analyze resource flows for water, gas, and energy. As utilities jump onto the smart grid bandwagon, technologies such as IoT, smart meters, cybersecurity solutions, state-of-the-art communication infrastructure, and geospatial information play a crucial role in their modernization journey. With regulations becoming more stringent, utilities are left with little choice and are required to modernize their infrastructure. Companies look for new solutions that can be integrated with their existing legacy infrastructure, increasing the need for massive investments. Similar is the case with the legacy geometric

network model, which might soon be replaced by a highly scalable network model. Utility enterprises that run on the geometric network model must consider switching to a more scalable utility network model, which would enable spatial modeling of the various network elements, such as pipes, valves, circuits, devices, and the like, in utility-specific spatial systems like power, water, sewage, gas, and telecom. It also helps build digital twins of real-world behaviors of these components under normal and various extreme conditions while modeling the network grids. The graphic elucidates the spatial utility network model, encompassing a connected network of assets from generation to meters. The next-generation network model supports the addition of distributed renewable energy resources to the network, defining micro-grids, decentralization of energy, and replacing analog with communicative and operatable meters, which can be added to any part of the connected network supporting advanced functions to improve resiliency, optimize power flows, and increase situational awareness with real-time sensing capabilities. A conceptual view of a fully connected network model The framework could be further scaled by extending the data model rather than appending it. Additionally, it can be designed to provide a single view of the generation, transmission, and distribution of assets and the status of the network, enabling better operational decisions in near real-time. Implementing the utility network model on a GIS platform will be a transformation journey. This requires a deep understanding of the utility domain data model and the proprietary applications accessing it. Here are a few scenarios where the utility network model will bring a distinct advantage: Visualizing substation data: In areas that face extreme weather conditions such as wildfires and hurricanes, utilities need to plan ahead and manage outages for public safety. In such cases, power restoration takes a long time and impacts the customer average interruption duration index (CAIDI). Outages caused by the underground assets take longer to isolate and restore, as it is challenging to visualize and locate the damaged assets with the current GIS capabilities. An internal view of the substation with all the details of the connected units is required to proactively isolate circuits in the path of wildfire or hurricanes. It is also important to visualize the substation internals to trace, select, isolate, and repair the vulnerabilities in the network, which can further improve the system average interruption duration index (SAIDI) and system average interruption frequency index (SAIFI). Visualizing underground ducts: To lay new underground cables effectively for quick power restoration during planned and unplanned outages, it is important to find the empty ducts in the duct bank. The model can help companies address new connection requests, prepare, and lay the cables, and energize them quickly. Visualizing and managing the water grid in GIS: The utility network model can be integrated with IoT devices to visualize the actual status of a network. An entire water grid can be visualized in GIS with operations-critical readings and parameters for better decision-making. The latest status of the devices and pressure readings on the network can be seen in the model-enabled GIS system to locate the defective devices that need to be isolated from the grid and restore the grid remotely using supervisory control and data acquisition (SCADA). Processes such as readiness assessment, subsequent data gap analysis, implementation recommendations, and the changes expected on the upstream or downstream system to attain the desired goals are key to modernization programs for making utilities future-ready. Implementing the

utility network model would require significant effort from business, IT, and dependent system stakeholders. Utilities will need to perform deep dive analysis of business workflows, applications, data, and tech architecture and the readiness to migrate to the utility network model through due diligence and thorough system analysis. They must realign business processes to take advantage of the current maturity of technology, which has replaced manual tasks, and identify workflow processes that are currently reactive but can be made proactive by leveraging next-gen spatial information in tandem with IoT data. Paying close attention to the current data model and changes that must be implemented in the utility network model's foundation will help customize it as per business needs. In addition, utilities can look for opportunities to automate tasks during migration, such as source-to-target mapping, data cleansing, and post-migration validation, to mention a few. Taking these steps to modernize the core network model will help utilities unlock many advantages, such as: Measuring Grid Resilience: Managing Disruptive Events in Utilities Prosumer at the center: Navigating the energy transition How sustainability is transforming CX in utilities Smart Grid and the 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
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Algorithmic precision: The future of HR metadata trends

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workplace, boost individual productivity, and enhance decision-making abilities for all. The opportunities are truly unprecedented. However, organizations are only just beginning to understand the transformational effect GenAI can have on employee experience, productivity, and efficiency. Determining the right use cases and solutions is key to maximizing the value from GenAI. The current crop of workplace GenAI solutions can function as personal assistants, automate time-consuming tasks, rapidly analyze large volumes of structured and unstructured data, and identify patterns, trends, and anomalies. Some can summarize meetings and extract vital takeaways, including capturing assigned action items. Others can facilitate real-time collaboration among teams, helping generate documents, spreadsheets, and presentations. Yet others can help salespeople upsell and cross-sell by providing insights into a user's past behavior and preferences or highlight areas for business improvement by analyzing customer sentiment from emails. Microsoft research on the effects of GenAI in the workplace indicates substantial gains in productivity and efficiency. Their survey, focused on the impact of Copilot at work, showed that 70% of users said the technology made them more productive, while 68% said it improved the quality of their work. The time saved and efficiencies brought in by GenAI solutions can help employees focus on higher-value tasks. But how should organizations go about adopting the technology? A streamlined approach to adopting GenAI can help enterprises realize business value faster. Enterprises can gain a head start by teaming up with partners who can help them with an accelerated approach to GenAI adoption. Defining a clear roadmap with key objectives and metrics is an important action point for successful adoption. So is deploying data-driven strategizing and fine-tuning along the journey. Enterprises need to focus on the following three fundamentals: Ensuring organizational readiness: Assessing and closing gaps in people, process, and technology readiness for the deployment and rollout of GenAI solutions is crucial. Moreover, equipping implementation managers with clear change management and adoption processes will be key to a smooth rollout. Determining the right use cases: Identifying and building a catalog of use cases aligned to the enterprise's line of business and having clear target benefits are important. Following a framework for discovery of the right focus areas, assessment of use cases, ideation with the help of POCs to finalize use cases for pilots, and a strategy to adopt GenAI at scale can be helpful for this activity. Calculating ROI: Determining a methodology to gauge efficiency improvements will help take the required course-corrective or optimization actions. Metrics such as the percentage of users actively using the solution, frequency and effectiveness of internal communications and collaboration, and changes in employee productivity should be considered in planning and strategizing an enterprise-wide rollout of a solution. GenAI solutions seamlessly blend into an enterprise's operations or an individual's workflow. They assist when needed, without disrupting the creative process. To get the most out of GenAI, it is important to extend and enhance the capabilities of GenAI solutions. This includes using data and information from diverse workplace and collaboration systems and solutions that a modern-day workforce is dependent on. Once a steady state is achieved after the implementation of a GenAI solution, organizations can leverage custom plugins to enhance the capabilities of these solutions. Plugins can bring in greater process efficiencies by enabling GenAI solutions to integrate with organizational systems. The GenAI

solutions can then be leveraged to retrieve information from the database of diverse systems and facilitate user actions from unified interfaces, making work easier for employees. The promise of plugins is greater ROI from GenAI investments. Some, like use cases for improving organizational search results, are particularly effective with the solutions accessing the collective enterprise knowledge base to retrieve contextual and complete information on things like the status of tickets, purchase orders, or shipment deliveries. As enterprise GenAI matures, many more custom plugins and novel use cases are sure to emerge. Organizations need to plan and build on their GenAI investments optimally. As the technology evolves, GenAI solutions and plugins will acquire greater intelligence and capabilities—and these will be key to powering higher productivity, richer innovation, and unmatched operational efficiencies while ensuring happier employees. TCS AI WisdomNext™ TCS Accelerated Adoption Approach for Microsoft 365 Copilot Enhancing Microsoft 365 Copilot Capabilities for Better Workplaces TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption 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 quantum technology is making waves in Australia

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Investment, TCS, Microsoft, KPMG, and the Office of the South Australian Chief Scientist, provided attendees access to world-leading experts in the field of quantum science and technology. Several leading Australian startups, including Q-CTRL, Quantum Brilliance and Silicon Quantum Computing, have also teamed up to push the country to become a leader. As quantum computing technology continues to evolve, Australia has the potential to become a global leader in this emerging field. By leveraging its strengths in education, research, innovation, and collaboration, Australia can unlock the full potential of quantum computing and drive economic growth and prosperity for years to come. The government should also work with universities to incentivise students and provide support to raise the learning standards in quantum technology. Universities and companies should continue collaborating and building solid technological relationships by working closely to ensure a smoother transfer of knowledge and skills. AI-Powered Software Portfolios: A Winning Strategy for Software Companies | TCS Recruitment Automation: Rethink Back-office Operations with RPA | TCS Blockchain Advertising to Transform Digital Advertising Value Chain | TCS An Agile Engagement Model for Managed Services 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 quantum computing can revolutionize manufacturing

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consists of two plants that supply materials to three distribution centers to meet the demand of each location. Assuming that there is a fixed transportation cost associated with each route, the overall cost of the supply chain (Z) can be minimized by optimizing the flow of materials (X). Quantum computers will likely have significant implications for industries that rely on optimization to assess various potential outcomes, each with numerous dependencies and constraints. Figure 4 depicts a straightforward supply chain network. There are two plants from which materials must be routed to three distribution centres to fulfil demand from each site. If transportation cost (C) is fixed for each route, then the unit can minimize the overall cost (Z) by optimizing the material part flow (X). But the actual scenario could be different. Manufacturing plants could be 20 to 30 in number, and distribution centers could be around 200 to 400. In that case, the above equation becomes lengthy. Classical computers will take longer to render the optimized solutions, which may sometimes lead to opportunity loss. Suppose other dependencies like variable fuel cost, variable demand, new processes, and new distribution sites are to be added. In that case, it may become impossible for the present day's computer to process it. So, we must utilize the computing capacity of the quantum computer here to facilitate optimized solutions and real-time decision-making. The following table highlights real-time decision-making by autonomous vehicles. In Figure 5, an ecosystem of autonomous vehicles is presented, where trajectory decisions are made based on the analysis of the current position and past experiences. The table demonstrates that the best route can be chosen using a path planning system, which enables the vehicle to constantly recalculate its path in real time with the help of QC. We can use QCs to deal with real-time routing problems. It uses live data from connected vehicles, roads and railways, weather satellites, and other data feeds.   Table 1 showcases the ecosystem of autonomous vehicles where trajectory choices are made. The best route can be picked based on analyzing the current position and past experiences (by analyzing time series data using Machine Learning). With the path planning system, QC can help constantly recalibrate the vehicle's path in real time. Harness the Power of Quantum Computing to Bridge Skills Gap Realize the promise of GenAI-powered digital workplaces Unveiling the Future Trends of Metadata Management in HR Taking advantage of spatial data for utility modernization 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 ======================

Improving safety and security in the oil and gas sector

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equation services Unlock Business Agility and Future-ready Operations with TCS Bringing Together IoT and Digital Engineering to Create Rich Experiences Harness the Power of Data and Analytics for better Business Outcomes Highlights On this page A resource-intensive sector High impact solutions Medium impact solutions The digital edge   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. Bodhisatta Biswas 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. Bodhisatta Biswas Business Analyst, Corporate Market Research You have these already downloaded We have sent you a copy of the report to your email again. As an asset- and resource-intensive sector, oil and gas faces an uphill task of maintaining safety and security.   With assets being vulnerable to cyber-attacks, causing the operational shutdown and leakage of confidential information, to employees getting exposed to harmful emissions or succumbing to fatal accidents leading to lost person-hours, the damages can have long-term implications. Recently, cyber-attack instances from ransomware on Colonial Pipelines, Chevron, and Exxon Mobil have forced them to pay ransoms in billions in addition to the cost incurred for the affected pipelines, servers, and sensitive data leaks. As the increased adoption of IoT devices weakens the IT-OT systems, such activities might rise. On the other hand, employee fatality and injury rates show significant concerns about productivity issues and skilled labor shortages. Emerging digital technologies, such as predictive systems and collaborative robots will play a crucial role in managing these adversaries. Use cases are being developed around digital twins, AI, IoT, robotics applications, and cybersecurity to create a more resilient and risk-free environment. However, the oil and gas industry needs a well-thought-out strategy to drive these

implementations. The impact-investment framework can be a blueprint for companies looking to assess their next steps in adopting these technological solutions. A graphic depicting a holistic safety and security blueprint as strategized by oil and gas companies, that is based on impact and investment, looking at a short to medium-time range, with varying business impact. AR-, VR-enabled immersive training, drone-based emission detection and quantification, and hazard-predicting and planning tools will have a medium to high impact and require short-term investments (below two years). While blockchain-based trustable communication, and blockchain-based asset authentication, will have a low to medium impact, and robotics-led leakage and spillage inspection, and AI-led cyberattack prediction will have a medium to high impact and require medium-term investments (between two to five years). Oil and gas companies can implement AI-based high-impact solutions to combat safety and security issues. Some of the high-impact solutions include: Hazard predicting and planning – Energy companies can use a pre-incident planning tool that is based on an AI prediction model to proactively assess risks, helping the plant operators and the response team make informed decisions. Shell's (Pre-Incident Planning) PIPA uses a similar technique wherein it analyzes historical data to assess the likelihood and severity of potential hazards. Proactive awareness has enhanced safety and risk management, making it possible to reduce incidents over the years. This tool can effectively assess the risks upfront, thereby reducing fatal exposures. AI-led cyberattack prediction – AI's intervention has opened new avenues for predicting unforeseen circumstances more accurately. Security teams and operators can use AI to create lifelike cyberattack simulations and recognize and address threats. It can also produce fresh data for training machine learning models, enhancing their accuracy in detecting and preventing cyberattacks. The timeframe for adoption might be in the medium term, but it has the potential to create exponential growth in terms of impact. Robotics-led leakage and spillage inspection – Energy companies have started deploying a fleet of robots to inspect and monitor critical assets for gas leaks, eliminating manual checks and providing valuable insights for operators to act on them proactively. Instances such as the use of Energy Robotics' solutions by Shell allowing autonomous inspection in explosive environments and Exxon Mobil's collaboration with Square Robot to deploy a submersible autonomous robot for inspecting the internal surfaces of the tank created a huge impact in building a safer and a more efficient workplace. Drone-based emission detection and quantification – With the advancements in the UAV space, companies can adopt a drone-based emission management system for faster detection of harmful emissions and redressing of the situation. The breakthrough has been brought about by Total Energies successfully integrating Airborne Ultralight Spectrometer For Environmental Applications (AUSEA) methane and carbon dioxide quantification into a robotics platform for real-time visualization of methane and carbon dioxide concentrations. Due to their cost-effectiveness and ease of use, drone applications can become one of the most sought-after options for emission detection. To improve resilience, oil and gas companies are exploring a host of safety and security measures based on cutting-edge technologies. Some of the short- and medium-term solutions are: AR-VR enabled immersive training – Companies invest in augmented reality (AR) and virtual reality (VR)-based simulations to train technicians and operators on real-life

experiences, ensuring critical knowledge transfer and mitigating knowledge gaps. Case-based simulations allow staff to assess and react to different mundane and complex scenarios for effective learning. ExxonMobil's digital garage leverages a similar setup to improve employee productivity and engagement, thereby reducing injury rates and enabling faster decision-making. Blockchain-based asset authentication - Blockchain has found its application in tracking and management of safety-critical process components. Shell piloted a blockchain-based decentralized digital passport system to authenticate equipment, parts, and products. The system creates a unique digital ID for each piece of equipment and records any digitally verified state changes. With assets being the most vulnerable component in the energy industry, this solution can effectively ensure asset data security and can see wider adoption in the medium term. Blockchain-based trustable communication – Circulation of financial misinformation and fake news can hinder employee trust and cultural dynamics. Companies are cutting down on these practices by adopting secure platforms. Total Energies' uses a trust certification platform for corporate communication to filter fake news. However, the recent addition of AI-driven deep fakes can create further worry about misusing employee and company data to hamper reputation. The proposed framework will aid energy companies in validating their priorities. Companies can assess their position in the market to identify potential technology solutions to be invested in or to be implemented. The goal is to empower them to decide their call for action items depending on their level of digital maturity and the propensity to spend on different digital technologies. The need for such an impact-driven approach is more prominent at this juncture as the sector is poised to make a transformational shift from a pure-play oil and gas producer and distributor to an energy company with the inclusion of renewables and low carbon solutions. The change in the business model will lead to asset proliferation thereby creating a greater demand for improved IT-OT resiliency and safer operations. OSDU Data Platform: A Game Changer in the Oil and Gas Industry Cloud Computing: Steering the Wheel of Sustainability for O&G Firms Envisaging IT Strategies for Energy to Reap Benefits The Ever-evolving Drivers for Energy Midstream Sector 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 =====================

Unlocking growth and efficiency for business excellence

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programmes to nurture a workforce that is skilled and equipped to turn ideas into reality. We understand that impactful ideas are not only generated within our organisation but can also be found through collaboration with external partners, startups, and academia. TCS actively seeks out such partnerships to foster an ecosystem of innovation across Europe, where collective efforts amplify the potential for positive change. As digital technologies continue to revolutionise and challenge entrenched industries, fresh opportunities for innovation are constantly arising at the rapidly converging intersections of business sectors. In a resilient innovation ecosystem, such opportunities offer companies the means to tackle distinct customer challenges. To identify such prospects, TCS initiated its Co-Innovation Network™ (COIN™) in 2006. TCS COIN™ unites a cadre of experts spanning startups, research, academia, and corporate spheres to engage in collaborative innovation endeavours aimed at addressing the unique needs of TCS' Fortune 1,000 customers. TCS is a hub of innovation where collaboration thrives, coming best into sight in TCS Pace. It is a unifying brand that brings together the best of TCS' innovation capabilities to build accelerated and meaningful business outcomes. TCS Pace Ports are physical-digital global innovation hubs that deliver fast outcomes in an agile mode, co-creating with customers and collaborating with an ecosystem of start-ups and academia. The Pace Ports find a presence at strategic locations across the globe. Believing in the responsibility to act as a good corporate citizen, TCS strongly emphasises sustainability and community engagement. We integrate sustainable practices into our operations, prioritise environmentally friendly initiatives, and support causes that align with our values, ensuring a positive impact on our communities. By fostering collaborative partnerships, we seek to address societal challenges, contribute to economic development, and improve the overall well-being of communities. In Europe, TCS is working with its partners to help achieve the 2030 targets of the European Digital Decade. TCS programmes directly address Europe's education and skills gap by engaging students who might not ordinarily look to the tech sector for a career. It is one of the goals of 'Go Innovate Together' — or goIT — TCS' digital innovation and career readiness programme. Active in 42 countries, the courses take 69% of their participants from marginalised or high-need communities and show them that they can access a career in STEM (Science, Technology, Engineering and Maths) with a wide range of skills. What makes goIT unique is that we can offer real industry expertise into the curriculum. Often, our TCS associates or our clients will participate in the programme. In Europe, TCS is working with its partners to help achieve the 2030 targets of the European Digital Decade. TCS programmes directly address Europe's education and skills gap by engaging students who might not ordinarily look to the tech sector for a career. It is one of the goals of 'go Innovate Together' — or goIT — TCS' digital innovation and career readiness programme. TCS recognises that building a greater future requires a diverse, skilled, engaged, and committed workforce. We actively engage in 'persona-based learning', where every employee can develop new skills based on their role and aspiration. In 2023, TCS Europe employees completed more than 11,000 hours of training, developing competencies across all technologies, with a special focus on Artificial Intelligence. We are also particularly proud of the fact that 125,000 mid- and senior-level TCS employees have been with the company for ten years. In Europe, of around 17,000 employees, more

than 5,000 have reached that decade mark. These long-standing TCSers have been central to our success as we have grown in recent years. They have helped us onboard fresh talent by imparting their vital contextual knowledge and customer-centric approach. In FY24, TCS Europe hired over 1,000 associates, boasting a diverse workforce of 142 nationalities. Women make up more than 32% of the local hires – an achievement attributed to TCS' outstanding internal leadership programme for women, highlighted in the "Diversity, Equity, and Inclusion Lighthouses 2023" report by the World Economic Forum. Through our unwavering commitment to re- and upskilling talent at TCS, we have consistently achieved and maintained high levels of customer satisfaction, a reputation we have proudly upheld for over a decade across Europe in the Whitelane Customer Satisfaction Survey. As we proudly mark our 12th consecutive year as a Top Employer in Europe, this accolade serves as a powerful affirmation of our deep commitment to investing in our people. This recognition encourages our belief that our employees are at the heart of our success. Over the last three years, TCS has welcomed over 10,000 associates in Europe, a testament to our dedication to nurturing talent. This commitment extends to the next generation through initiatives like our TCS Pace internships and the Grow@TCS trainee programme, where experienced employees inspire and guide new joiners. We see this certification as more than an acknowledgement; it reflects our unwavering dedication and the positive impact TCS has had on its employees, businesses, and the communities we operate in. This milestone fuels our determination to continue fostering an environment that empowers our workforce, ensuring our employees and customers share in the multitude of benefits resulting from this collective effort. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Understanding the EU CSRD Regulation and How TCS Can Help 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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Business is playing catch-up with AI

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transformative potential beyond just rolling out the cool shiny new toy in town; that is, generative AI (GenAI) powered by large language models (LLMs). The study explored the impact of more established forms of AI (such as predictive analytics, machine learning, and automation) combined with GenAI. We did it this way because we believe the value of AI in the future will entail a combination of these capabilities. While more than half the survey participants believe that AI's eventual impact will be even greater than the internet or smartphones, nearly 72% of them still believe they don't quite have a handle on which KPIs will measure the success of AI implementations. Once again, this is a classic illustration of Martec's Law, this time showing the symptom of an early-stage divergence curve. Everyone wants to implement GenAI, but then discovers that while it's easy to do technology proofs of concept and pilots, it's hard to scale these implementations to production. The reasons are manifold. The technology is fundamentally probabilistic, while companies generally prefer to be more deterministic. Customer-facing GenAI chatbots are, for instance, being rolled out with great reluctance and lots of leashes to reduce the risk of the models going haywire and causing reputational harm. Yet our study shows that for the marketing function, the interest in exploring the use of chatbots to improve customer engagement in marketing initiatives and for post-sales support is fairly high. Another intriguing finding: 65% of executives still believe human creativity or strategic thinking will remain essential to their competitive advantage, another classic sign of early-stage Martec's Law thinking. The divergence between culture and the hockey-stick growth of AI is still perceptible and manageable. For now. Therein lies the fundamental challenge for companies when navigating the AI era. We absolutely expect AI models to get significantly better at creativity, strategic thinking, and planning in the very near future. In another six months, it won't be surprising to find executives changing their positions on the human-AI capability spectrum. However, this doesn't mean humans will become nonessential. In fact, while seemingly superhuman technology can be intimidating, it can empower humans to be better. A Time magazine article titled 'AI could help free human creativity' sums it up nicely: "AI will not necessarily come up with our best ideas for us. But it will greatly reduce the cost—in time, money, and effort—of generating new ideas by instantaneously revealing untold options. It will enable us to efficiently discard the 'useless contraptions' that cloud our vision and identify useful combinations previously unseen. It will empower us to broadly and efficiently canvas an incredibly vast range of domains to pull relevant knowledge from unexpected places. If used properly, AI will ultimately help us seed far greater innovation throughout our society." I invite you to take a look at our study. It is illuminating and filled with unique insights from companies across various industries from around the world. Like with most disruptive technologies (as we saw with the internet and smartphones), culture change is hard, but transforming your company's value chains natively for AI is essential to truly take advantage of this ground-breaking technology—and to stay ahead of the competition. Get more insights and discover the latest AI trends for business here Download the complete TCS AI for Business survey here TCS' Responsible AI Offering Accelerating Enterprise Gen AI Adoption Generative AI in Finance: Opening up a Sea of Possibilities Generative AI: Powering Next-generation Manufacturing Setting up Generative AI Guardrails for Secure LLM Usage Register for our email newsletter to get

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TCS drives sports sustainability with Green Sports Alliance

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University of Waterloo have predicted that if the current climatic trends continue, only 10 of the 19 Winter Olympics venues will be naturally viable winter sports centers by 2050 and only six by 2080. According to a recent report, 23 of the 92 professional soccer clubs currently playing in the Premier League and English Football League can expect partial or total annual flooding of their stadiums by 2050. TCS has always championed advancing sustainability goals through sports. We have now taken another step forward by joining the Green Sports Alliance (GSA) as a Play to Zero partner. This partnership marks the latest milestone in our commitment to advancing sustainability through sports. Our decision to become a GSA member is rooted in our unwavering dedication to fostering sustainable practices across industries. By joining forces with GSA and our fellow Play to Zero partners, we aim to use the influential platform of sports to drive awareness, inspire action, and make a meaningful difference for the planet. At TCS, we envision a future where sports spark advances in environmental stewardship, such as promoting responsible consumption, resource efficiency, and eco-friendly practices. With our expertise in technology and innovation, we are poised to join our partners and help transform the sports landscape into a beacon of sustainability. At TCS, our commitment to sustainability in sports is not merely rhetoric; it's backed by concrete actions and initiatives that highlight our dedication to making a significant real-world impact. One such initiative is the ReScore app, developed in collaboration with the Council for Responsible Sport. This simple app enables sports organizations and event planners to measure, track, and improve their sustainability performance across a wide range of metrics. ReScore offers stakeholders actionable insights and best practices to adopt greener practices, minimize their environmental footprint, and boost the overall sustainability of sporting events. The Indianapolis Motor Speedway, home to the largest single-day sporting event in the world—the Indianapolis 500— became the first sports facility to achieve organizational certification through the Council for Responsible Sport. The TCS London Marathon became the biggest running event in the world to earn the Council's gold certification using ReScore while the TCS Toronto Waterfront Marathon became the only race in Canada to earn Evergreen certification. Furthermore, we have forged strategic partnerships with leading players in the sports industry to drive sustainability on a global scale. One such partnership is with Jaguar TCS Racing in the all-electric ABB FIA Formula E World Championship, the first net zero sport since its inception in 2014. By combining advanced technology with a shared commitment to sustainability, TCS and Jaguar TCS Racing are setting new standards for sustainability and performance, demonstrating the power of collaboration in driving positive change. While we have made significant strides in advancing sustainability through sports, the journey is far from over. As a member of the Green Sports Alliance, we are committed to continuing our efforts to push the boundaries of innovation, collaboration, and sustainability in the sports industry. Looking ahead, we envision a future where sustainability is not just a buzzword but a guiding principle that shapes every aspect of the sports ecosystem. From stadiums and arenas to fan engagement and athlete performance, our aim is to drive holistic transformation by embedding sustainability into the DNA of sports culture. As a champion of sustainable practices, we remain steadfast in our mission to leverage the power of sports to inspire communities, empower stakeholders, and build better,

more sustainable futures for generations to come. TCS London Marathon: Technology for Sustainability in Sports Measuring Sustainability and Net Zero Emissions with the ReScore App TCS Sports Sponsorship: Driving Sustainability for a Better Future TCS London Marathon 2024: Doing our Bit to Build a Better Future 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 ======================

Product companies find new value in value engineering

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Daniel Arockiam Lead – Design to Manufacturing CoE, Intelligent Products, IoT and Digital Engineering, TCS You have these already downloaded We have sent you a copy of the report to your email again. A decades-old cost management framework is coming to the rescue of sustainability-conscious product companies. Once seen as just a cost management technique, companies are now finding new value in value engineering—a function-based, structured, life cycle-focused improvement methodology for products, processes, and systems. Product companies have often used it to improve the value of their products and systems, keep up with evolving customer preferences, and stay relevant amid technological, economic, and geopolitical disruptions. Beyond cost optimization, they are now looking at value engineering to help meet their sustainability goals. With 70%-95% of a product organization's carbon footprint created during a product's use phase, companies realize the need to design for sustainability—design products with energy and material efficiency that long after they go out into the world keep helping them realize their sustainability goals. Value engineering allows companies to reengineer products and systems with a focus on minimizing materials, manufacturing, and waste. It allows end of life (EoL) management and sustenance ownership for products and systems at the lowest possible cost. Take, for instance, support structures for a product or machinery that are usually designed as large weldments. Using particle function analysis, which is core to value engineering, the function of each part in the weldment can be identified and the same function can be fulfilled using a simple standard hollow extrusion. Also, by sourcing the materials used for extrusions locally, emissions from manufacturing large weldments and transporting them across several miles can be avoided. Another example is the ubiquitous printed circuit boards. Their life can be extended by replacing legacy components with compact, multifunctional, and cost-effective ones and increasing the number of layers of a board to the maximum to reduce the form factor, thereby making it economical and sustainable. Value engineering becomes most critical during economic slowdowns when demand for low-cost products and services increases and companies need to produce more with less. During such times, organizations resort to one or more of the following strategies: developing value-driven products or services, simplifying product portfolio, or refining the new product development roadmap with a renewed focus on cost savings, expense reduction, and compliance with new regulations like sourcing and export restrictions. With the right strategy, companies can extract maximum value from products and systems. Traditionally, value engineering applications have mostly focused on the cost aspect. However, to extract the maximum value from products and systems using this method, companies need to have a holistic understanding of the industry, the current life cycle stage and maturity of the product, and technology and business model disruptions. They also need to ensure that the right value engineering strategy—whether it is product and system near-shoring, product simplification and parts integration, dimension analysis and management, EoL management, sustenance ownership, model-based design and development, making products connected and intelligent, recycling, or supply chain optimization—is applied at the right stage. Integrating continuous improvement techniques such as 5S, Kaizen, Six Sigma, theory of constraints, blue ocean strategy, technology scouting, and functional benchmarking will also help bring out the value in value engineering. GenAI

can be a game changer for value analysis and value engineering (VAVE) projects. A challenge with VAVE projects is the time-consuming and cumbersome product life cycle data collection process, verification, and analysis. Traditionally, these data have been handled by siloed departments, and it is hard to collate them on time and identify the gaps for value enhancements. GenAI can be a game changer here. GenAI solutions can be integrated with IT systems having the required information and use the data from them in real time to generate insights to identify the value gaps. In addition, they can also be leveraged for documenting and updating VAVE study reports in a repository for reuse and refinement for further innovation. Reduce SCOPE 3 emissions with value engineering. With cost optimization being a top priority for C-suite leaders and an increasing focus on sustainability, value engineering has found new relevance. As material, energy, and transportation savings achieved through value engineering directly contribute to a reduction in SCOPE 3 emissions (those that are not the result of activities from assets owned or controlled by a company, but by others in the value chain), taking the approach can help companies accelerate the journey to becoming more sustainable organizations. To get better outcomes from VAVE initiatives, companies would do well to partner with engineering services providers who can bring in out-of-the-box value improvement ideas from across industries. Software-defined vehicles: Four takeaways from the aviation sector Traverse the Journey to Smart and Connected Products with TCS Software-defined products: the path to product transformation TCS Rated #1 Engineering Services Provider of the Year by Everest Group 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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Patient Behavior: The key to superior healthcare

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blockchain, along with wearable medical devices, can make patient data collection, processing, and communication easier. Insights from solutions powered by these next-gen technologies can help set up behavior-driven care systems for effective personalized treatment. A behavior-driven care system will only be as good as the data it gets. It will require a constant stream of behavioral data, continuously collected and analyzed. Four key data sources should be considered for obtaining patients' inherent and evolving behavior data: For a behavior-driven care system to work, an IT architecture that supports it is vital. We can visualize such a system as comprising two main layers: a data collection layer and a data insight layer. The data collection layer can handle the collection of various data from patients, including patient-provided pain scores or step counts from wearable medical devices or mobile applications. The collected data can be securely communicated from the data source and stored in a central storage location. Technologies such as IoT (for collection of data from connected devices), 5G (for powering health applications), and cloud as a unifying fabric enabling other technologies can play a key role. Advanced analytics on the collected data using AI/ML technology can provide a deeper understanding of a patient's condition or recovery. This is where the insight layer comes in. It should support powerful software that leverages AI-ML techniques to analyze the stored data and provide meaningful insights into patient behavior and health. Such software typically falls under the regulated medical software applications or software as a medical device category. They can also help with data privacy compliance. Health professionals can use the insights from such applications for timely interventions in care delivery.   By embracing patient behavior-driven care, medical device manufacturers, pharmaceutical companies, healthcare providers, and payers can transform care delivery. They need to invest in new technologies and robust technology architectures for such a care system now to make a difference in the lives of millions. Traverse the Journey to Smart and Connected Products with TCS TCS Digital Skin Twin Platform Joint replacement: Reimagining patient experience with behavior-driven service design How digital drives deeper mental health care 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 =====================

Putting square pegs in 'square' holes using AI

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insights into which candidates are most likely to excel in specific roles. Benefits of leveraging technology for pre-screening and assessment Overall, leveraging AI for pre-screening and assessment offers numerous benefits, including: In conclusion, AI-powered pre-screening and assessment tools represent a valuable resource for modern organizations looking to optimize their hiring processes. By harnessing the power of AI, businesses can identify and attract top talent more effectively, ultimately driving better business outcomes. OKR – Why is it so vital? How to choose an HRMS solution? BFL gets a unified HR solution with TCS CHROMA™ Intelligent HCM with TCS Chroma™, a unified HRMS 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 try after some time. =====================

HR tech for building a sustainable organization

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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. Rhitwik Singh Business Development Manager, Platform Solutions, Products & Platforms, TCS Chroma™ You have these already downloaded We have sent you a copy of the report to your email again. The term 'HR tech' encompasses the software and systems used to manage HR processes such as recruitment, payroll, and employee performance. It leverages technology to streamline operations, enhance decision-making, and improve employee experiences within organizations. HR tech can be effectively utilized to promote sustainability. Following are some of the aspects of HR tech that can be used to direct an organization toward achieving its sustainability goals: Conclusion: From undertaking green initiatives to setting up ethical supply chains, HR tech serves as a cornerstone in the development and implementation of sustainable organizational practices. By leveraging technology to attract and retain talent, promote employee well-being, drive environmental responsibility, and foster a culture of sustainability, organizations can create value not only for their stakeholders but also for society, and the planet as a whole. As the role of HR tech continues to evolve, it will undoubtedly remain a vital enabler of sustainable business practices in the years to come.   OKR – Why is it so vital? How to choose an HRMS solution? BFL gets a unified HR solution with TCS CHROMA™ Intelligent HCM with TCS Chroma™, a unified HRMS 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 try after some time. =====================

CS3D: A game-changer for sustainable business practices

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potential harms. Scenario 2, banking: A 'green bank' that provides sustainable finance solutions to its customers conducts rigorous due diligence on potential investments under CS3D. This uncovers a loan application for a project linked to deforestation, a violation of CS3D's environmental protection mandates. Legally bound by the directive, the bank cannot proceed with the loan. Instead, it engages with the applicant, exploring alternative funding options aligned with sustainable practices. It also advises the applicant on exploring renewable energy sources, promoting the responsible use of resources as outlined by CS3D. This scenario illustrates how CS3D acts as a catalyst for responsible banking, with the organisation—obligated by law—actively preventing potential environmental harm and thus setting a precedent for a more sustainable financial landscape. CS3D is a complex and ambitious proposal with many benefits and challenges. Among the benefits are: • Comprehensive and structural approach to due diligence around the supply/value chain and other stakeholders • Ecosystem creation with other organisations and collaboration for positive impact • Better and clearer visibility around the value chains of participating organisations • Better awareness of impact • Supply/Value chain modernisation • Better risk management and mitigation • An opportunity for employees and stakeholders to share knowledge and grow Potential challenges are: • The scope of the regulation is too wide and needs clarification • Execution issues and potential inaccuracies linked to robust parameters about sustainability reporting • High cost of compliance and transition • Sensitive nature of information, leading to unintended and malicious consequences • Potential cost increase in goods and services • Non-compliance leading to fines of up to 5% of the company's global net turnover • Non-readiness of organisations and countries in implementation Despite its good intentions, CS3D has sparked significant concerns from various stakeholders. This has raised the need for potential amendments to balance its vision with practical implementations for businesses. • Industry group BusinessEurope, which represents European businesses, has expressed concerns that CS3D would impose excessive costs and administrative burdens on companies, potentially stifle innovation, and undermine competitiveness. BusinessEurope also calls for a workable and clear CS3D that does not weaken the internal market. • The Centre for European Policy Studies, a think tank, has said "there might be ground for corporate panic" and that CS3D may be asking too much of the private sector. • The European Environmental Bureau (EEB), an advocacy group, has called for stronger enforcement mechanisms and a clearer focus on the most pressing sustainability challenges. EEB also published an open letter on behalf of 20 organisations, calling for "effective environmental protection in the CSDDD". Despite these setbacks, following the EU Council's vote on March 15, 2024, the European parliament passed the CS3D proposal on April 24. The directive will be formally adopted by the summer and EU member states will then have two years to transpose the legislation into national laws. This is the timeline for bringing CS3D into law: • 2027: For organisations with over 5,000 employees and a turnover of EUR 1.5 billion • 2028: For organisations with over 3,000 employees and a turnover of EUR 900 million • 2029: For organisations with over 1,000 employees and a turnover of EUR 450 million For non-EU companies, the same revenue thresholds apply to the phased implementation, but with no employee thresholds. All other businesses within the scope should prepare to meet the

requirements from 2030. Non-compliance may result in sanctions such as fines and compliance orders, and there is also potential for civil liability. CS3D isn't just compliance, it's a strategic shift. Companies will need to approach their strategy and execution through the lens of risk management in the entire supply/value chain, so they can better understand what goes into their products and services. This deeper understanding will unveil inefficiencies and outdated practices, prompting innovative solutions and targeted investments. In essence, CS3D will demand new sustainable business models across industries to tackle pressing challenges. Considerable areas of CS3D still need clarification. In the meantime, organisations should start to prepare their strategy, plans, and responses with active actions to accelerate preparations. This should include: • Internal assessment on awareness and readiness for CS3D • Mapping existing due diligence policies and supply and value chains • Identifying business partners At Tata Consultancy Services (TCS), we are closely following CS3D developments, contributing to EU stakeholder consultations and policy papers, and preparing ourselves from the internal strategic planning and actions points of view. With our bespoke advisory and consultancy services, we are ready to help our clients prepare for the implementation of the directive and to guide them towards a more sustainable corporate future. TCS ZeroC l Business Carbon Footprint Calculator Ecosystem-led Approach to Power Your Sustainability Strategy Sustainable Business: TCS' Commitment to the Planet Here's TCS' own sustainability success story 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 ======================

Enhancing employee experience to improve CX in retail

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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. Figure 1 Kamaraj Chinnasamy 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. Kamaraj Chinnasamy Retail Domain Solutions Head – TCS UK & EU, Retail, TCS You have these already downloaded We have sent you a copy of the report to your email again. In today's competitive retail landscape, creating a seamless and personalized customer experience is more critical than ever. Yet, a crucial element often overlooked in achieving this goal is the experience of the retail employees themselves. A positive employee experience is not just a nice-to-have; it's a business imperative that directly influences customer satisfaction and loyalty. When retail employees feel valued, empowered, and engaged, they are more likely to go that extra mile, delivering exceptional customer service that fosters long-term relationships with customers and enhances their overall shopping experience. Investing in a supportive and enriching work environment for retail employees can transform the customer experience, driving both employee satisfaction and business success. From personalized interactions to enhanced service delivery, the far-reaching impact of a good employee experience is undeniable and essential for any retailer aiming to stand out in a crowded market. However, the retail industry in the UK is currently facing a shortage of workers due to socio-economic changes and increased labor churn because of changing career preferences among younger generations. Retailers are struggling to attract and retain high-quality talent. Additionally, it takes around three-and-a-half weeks to onboard new retail employees and about three months for them to become fully functional. The labor shortage has led to understaffed stores, longer queues, a shortage of assistance on the floor, and fatigue and stress among existing store employees. This is negatively impacting customer experience, potentially leading to lost sales. Retailers must focus on retaining existing employees and attracting new ones by creating an amenable work environment. To support their business and enhance the employee experience, retailers are turning to technology solutions. The integration of technologies such as artificial intelligence (AI), machine learning (ML), and IoT has the potential to empower employees, leading to increased job satisfaction and improved

customer service. We explore how technology-driven solutions can create impactful change in the retail workspace. Retailers must use augmented reality (AR) and virtual reality (VR) to create interactive training environments for their employees. These immersive training sessions can help store colleagues gain a deeper understanding of products, systems, customer service, and operational procedures, thereby accelerating the onboarding process. Employees focused on sales will benefit tremendously from this comprehensive product knowledge. For instance, new employees can receive training that involves visualizing product features and understanding their benefits, which leads to more effective sales pitches and customer interactions. Additionally, AR-VR-based troubleshooting and self-help solutions can significantly reduce the time taken to resolve in-store infrastructure issues. Retailers must leverage AR-VR to create immersive training environments, enabling employees to learn in interactive settings. Mobile apps and platforms can enable real-time communication and sharing of updates, fostering enhanced teamwork and communication among retail employees. This will not only ensure smooth operations but will also create a more cohesive and collaborative work environment. For example, if the business team plans a promotional sale, the workers at the fulfillment end are updated about the potential influx of customers and orders due to it. Feedback platforms integrated into mobile apps will allow employees to voice their concerns, offer suggestions, or report escalations instantly. This will ensure any challenges faced by employees are addressed promptly, leading to a more positive work environment. One of the main challenges in the retail industry is shift scheduling. By using generative AI (GenAI), retailers can analyze employee data on preferences, availability, workload, and skillsets to create an optimized schedule that assigns tasks to the most suitable employees, minimizing scheduling conflicts. By integrating technology in retail operations, firms can improve day-to-day processes and tasks handled by retail employees. Traditional inventory management is prone to human errors and can be tedious. Leveraging technologies such as RFID and IoT can ease logistical challenges. With AI-driven solutions, employees can easily predict demand, optimize stock levels, and automate reordering processes. For instance, smart shelves with IoT sensors can detect low-stock items and automatically send reordering requests. This will minimize the chances of stockouts and overstock, reducing stress and guesswork among employees. Additionally, technology systems can enable employees to efficiently manage stock operations, including receiving, counting, picking, and transfers. Guided navigation in the warehouse and stores can further improve employees' accuracy and efficiency, allowing them to focus more on strategic decisions. Customers today have access to a lot of information about the products they intend to buy. This makes it important for store employees to enhance their role and provide customers with additional knowledge to help them make better buying decisions. Recent research shows that more than half of the customers are willing to pay more for a personalized experience. Retailers can use clienteling apps to help employees understand customer preferences and purchasing history, and provide personalized recommendations based on individual needs. These apps can also include features such as product lookup to provide customers with accurate information about product availability, stock arrival, usage instructions, size variations, colors, warranty, and so on. AI-powered chatbots are typically used for online customers, but they can also

be integrated into employee apps. They can enable a GenAI engine to retrieve all the necessary information about a product, including its availability and location, with a simple prompt. By streamlining the service process, employees can focus more on value-added tasks. To assess their approach, retailers can use the employee experience framework, which defines four stages of capabilities: essential, engage, enable, and empower. The essential stage focuses on establishing the foundational elements, the engage stage is about fostering collaboration, the enable stage focuses on equipping employees with tools, and finally, the empower stage drives innovation and fosters a culture of employee advocacy. The framework (see Figure 1) provides a non-exhaustive view for evaluating the maturity of the retailer's approach on the four pillars mentioned above. The image depicts a framework to assess a retailer's approach to improving employee experience. The essential stage focuses on establishing the foundational elements, the engage stage is about fostering collaboration, the enable stage focuses on equipping employees with tools, and finally, the empower stage drives innovation and fosters a culture of employee advocacy. Framework to assess approach to employee experience Ultimately, the integration of technology for enhancing employee experience will foster a cycle of improvement that can elevate the entire retail operation, ensuring sustained success and a competitive edge for retailers. As technology continues to evolve, retailers can find more ways to harness its potential in creating an efficient, responsive, and rewarding environment for employees, which, in turn, will translate into an enhanced customer experience. Improve AI maturity with the 3A framework TCS Algo Retail™: Lead the next frontier of retail Retail buyer behaviour has changed; there's no going back The 'Technology' Shots that Stores Need to Level Up Customer Experience 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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Integrated ITSM and ITPM: A ticketless enterprise

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and proactive issue resolution Streamlined incident management Enabling self-healing systems Real-time collaboration Efficient resource management and capacity planning Continuous improvement 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. Debarghya Mukherjee 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. Debarghya Mukherjee Product Engineering Manager You have these already downloaded We have sent you a copy of the report to your email again. Imagine a scenario where an organization provides an e-commerce platform to shop for daily essentials, and a critical incident occurs. Customers start reporting slow response time and transaction failures, causing deep frustration. This incident threatens not only the organization's reputation but also its revenue since a business-critical e-commerce technology platform forms the backbone of the organization. The IT team is tasked with resolving the incident as soon as possible to retain customers. However, they do not possess the monitoring metrics and performance data required to identify the cause of the problem. Moreover, different teams must examine IT components, such as network, computing, and storage, to determine where the issue lies. While the team must spring into action, how can they ensure a swift and effective response? The answer lies in the integration of ITSM and ITPM systems. Before we proceed further, it would help to understand what ITSM and ITPM stand for. ITSM stands for the management and delivery of IT services to end users by an organization. It encompasses service management, change management, incident management, problem management, knowledge management, and asset (software and hardware) management. ITPM is the process of monitoring and managing all infrastructure components and application requirements

of an organization. When these two systems are integrated, they create a synergy that can enhance an organization's ability to deliver high-quality IT services. This is a key step towards creating a "ticketless enterprise." A ticketless enterprise aims to streamline IT operations and incident management processes to the point where traditional end-user-driven ticket-based systems are minimized or eliminated. Organizations should carefully consider several key factors before integrating disparate internal tools or shopping for a tool that provides integrated IT service management and performance monitoring features. ITSM processes are often complicated and interlinked. Without any clear process handbook to follow, it can be challenging at times to understand how they fit in with the overall business processes. This may lead to inconsistencies in how services are implemented, affecting the overall quality of service. Data consistency across systems and processes is pivotal to avoid errors, disparity, and redundancy. Integration increases the complexity levels of the IT landscape while expanding points of attack. Authentication mechanisms, encryption, and access controls are some of the strong security measures that organizations must implement to prevent unauthorized access and protect confidential information. Technical challenges may include compatibility issues between disparate tools, data format inconsistencies, and integration complexities across multiple interfaces. Integrating systems that use different security protocols, unique data-sharing techniques, varied programming languages, or data formats requires careful planning and implementation. Assess the software vendors' support and future roadmaps. Ensure they are committed to providing ongoing support, updates, and compatibility with future versions of their products. Also, consider the solution's scalability to ensure that it accommodates future growth and evolving IT needs. The integration provides a comprehensive view of the IT landscape and its real-time performance. It allows teams to proactively identify and address potential issues, such as performance degradation before they cause major disruptions. Constant monitoring helps assess the health and performance of the IT infrastructure and applications, providing real-time data and alerts when anomalies are detected. When monitoring alerts are integrated with ITSM incident management systems, creating and managing incident tickets is streamlined. This reduces the manual effort required for creating, updating, and closing tickets while ensuring that issues are documented, tracked, and addressed efficiently. Application performance management (APM) tools can be configured to set performance thresholds for applications or infrastructure components. When these thresholds are breached, automatic alerts are triggered. ITSM systems can route these alerts to the appropriate teams for investigation and resolution, bypassing the ticketing process for straightforward issues. Team collaboration becomes more efficient as stakeholders communicate and coordinate directly within the integrated platform. Performance monitoring data provides insights into resource utilization trends, which helps IT teams identify resource inefficiencies and optimize resource allocation, ensuring that IT assets are used efficiently and cost-effectively. This helps organizations get the most value out of IT investments and make informed decisions about scaling IT infrastructure. The integration allows for a continuous improvement loop where incident data and performance insights are fed back into the ITSM and APM systems. This helps identify root causes and implement long-term solutions, reducing the recurrence of incidents.

Furthermore, it helps IT teams identify areas for optimization and implement changes based on data-driven insights, resulting in a constantly evolving and more efficient IT environment. Integrating ITSM and performance monitoring is a crucial step toward achieving a ticketless enterprise. It is a strategic move that can revolutionize organizations' operations. The Future of AI in India: A Revolution in Social Empowerment Sodexo Selects TCS ERP on Cloud Platform to Drive Future Growth TCS Platform helps Ampleon Use ERP-on-Cloud to Drive Business Agility TCS ERP on Cloud for SAP Landscape Migration and Modernization 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 =====================

Role of AI and ML in APM: Why they matter?

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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. Ayush Kumar Senior engineer (AI and Machine Learning) You have these already downloaded We have sent you a copy of the report to your email again. In the era of digital transformation, new complex infrastructures and applications are being developed with new techniques and modern design patterns. Managing and operating the infrastructure of such modern software is now facing new challenges as traditional monitoring solutions fail to provide complete visibility for IT systems and applications. Also, it falls short of being preventive, proactive, and predictive in nature. Traditionally, APM tools relied on static thresholds and predefined rules to monitor application performance. These methods were often reactive, detecting issues after they had already impacted end users. The integration of AI/ML algorithms into APM tools brings in a paradigm shift by enabling proactive and dynamic monitoring. AI-enabled application performance monitoring solutions will help to proactively monitor system and application health parameters, logs, and traces to detect and address performance issues, leading to an enhanced system performance and availability. One of the key advantages of AI/ML-powered APM is its ability to learn and adapt. Through continuous analysis of vast datasets, AI/ML algorithms can identify patterns, anomalies, and trends that would be impossible for human operators to detect manually. This learning process allows APM tools to establish baselines, detect deviations, and predict potential performance issues well before they affect end-users. In our internal analysis, we ascertained that AI-enhanced APM capabilities reduces the resolution time for major incidents by 75%. We achieved a reduction in downtime by 50% and improved mean time to repair (MTTR) by 50%. These statistics highlight the importance of AI/ML in automating and proactively preventing issues. Some of the key areas where AI/ML can improve application monitoring and performance are highlighted in this blog. Real-time forecasting of system and application health parameters such as CPU utilization, memory utilization, average response time, user system load, and others can help organizations to foresee the behavior of systems (system slowness, increased latency, or out of memory errors) in real-time to prevent potential system performance issues and outages later. Advanced ML algorithm and statistical intuition enables automatic learning of changing pattern in metrics values, it can correlate with the underlying system logs to pull out the probable reason for spikes in the forecasted values. This helps support teams to proactively size and scale the resources of the applications. Multi-cloud IT Infrastructure and application monitoring are overly complex in nature due to the presence of several virtual machines, application instances, network components, and other IT resources. These systems generate enormous amount of system logs. It becomes difficult for support teams to track these log data and find irregularities and anomalies that may cause performance concerns, network throttling, and even outages. AI-based anomaly detection systems can help detect deviations from the system's

normal behavior and finding outliers in various univariate time series metrics and logs.   ML algorithms are used to process enormous amounts of data and to identify patterns and correlations within the system health metric data that are tedious to detect manually. AI models can analyze the metrics, logs, and traces proactively and efficiently and create dependency maps by analyzing the relationship between various components. This helps identify which components are affected when an issue occurs, narrowing down potential root causes. AI-applied operations accelerate observability as it predicts issues proactively so that they can be prevented before they happen. AI models can quickly analyze and correlate system health data to predict potential issues before they lead to system unavailability and performance issues. These can fine-tune themselves based on user feedback and generate better predictions of system failure or performance issues. They can suggest preventive measures or predict solutions to avoid such issues. AI can be leveraged for alert suppression (alert noise reduction) so that support teams can act on real issues instead of noise. Such intelligent alerting method can help in the analysis of logs, correlate metrics and traces to determine the alerts that have potential impact on performance and stability of the application and ignore/eliminate false positives, thereby saving time and resources. AI-enabled cloud cost monitoring can enhance cost management and optimization. This is because daily cost reports sent by cloud providers are not enough to detect cost anomalies in real-time at lower granularity as well as to forecast monthly costs with higher precision. Further, AI can analyze spend patterns to detect overspending and spend outliers and suggest cost cutting measures which help organizations to optimize budget, plan, and allocate resources more effectively. Integrating AI with monitoring solutions can enhance multi-cloud infrastructure and application monitoring through predictive monitoring, capacity forecasting, anomaly detection, root cause analysis, actionable intelligent alerting, and cloud cost analytics. Embedding AI in application performance monitoring offers a wide range of quantifiable benefits, including cost savings through reduced downtime, efficient resource allocation, lower operational costs, better productivity, and cloud cost optimization. The Future of AI in India: A Revolution in Social Empowerment Sodexo Selects TCS ERP on Cloud Platform to Drive Future Growth TCS Platform helps Ampleon Use ERP-on-Cloud to Drive Business Agility TCS ERP on Cloud for SAP Landscape Migration and Modernization 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 =====================

Cruising towards safer autonomous vehicles

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imperative. And to ensure safety in all potential scenarios, stringent adherence to safety standards is non-negotiable. Stringent adherence to standards such as ISO 26262 and SOTIF can help raise the bar on safety. Today, functional safety standards are built into vehicle design at the conceptual phase itself. The emphasis is on systems that continue to function and protect passengers in case of a problem—as opposed to systems that fail silently. ISO 26262 for functional safety is already a standard at auto players. It provides a risk-based approach to the functional safety of all automotive systems. Through hazard analysis, risk assessments, and other methodologies, it ensures that potential hazards due to possible electrical and electronic systems failures are identified and mitigated. However, adhering to this standard will not be enough when it comes to hazards caused by environmental factors or driver misuse. Consider a situation where the lateral movement control of an AD vehicle stops working due to the advanced driver-assistance systems (ADAS) not receiving camera sensor data following a breakdown of the communication line inside the vehicle. That's when ISO 26262 design principles will kick in to address the problem. But if the ADAS system fails because of camera sensor limitations due to bad weather conditions, ISO 26262 will not be enough. Principles of the relatively new safety standard, ISO 21448 for safety of the intended functionality (SOTIF), can help here. Unlike ISO 26262 that focuses on preventing failures, this new standard addresses the safety of the intended functionality. It ensures that a vehicle performs safely under all conditions, expected and unexpected, and even in 'edge cases' when the vehicle slips from predefined restrictions to unknown territory. Along with prioritizing ISO 26262, identifying and mitigating edge cases with SOTIF can help assure safety in all possible situations in AD systems. Together, ISO 26262 and SOTIF can help raise the bar on safety, enabling AD vehicles to tackle not just internal system failures, but also external factors such as sudden changes in weather or road conditions. AI technologies including generative AI can help build contextual intelligence of self-driving vehicles. Intelligent systems that power AD vehicles derive their understanding of the environment and essential insights for the safe operation of vehicles from the stream of data from multiple sensors. They need a constant flow of data to function. Additionally, ensuring compliance to standards like SOTIF will require building a database of edge cases or rare scenarios. These include extreme environmental conditions like fog, rain, snowfall, loss of GPS signal in tunnels, or passenger's inexperience of the human-machine interface or cockpit leading to misuse—all of which compromises safety. Ensuring SOTIF, for instance, for a lateral movement control of AD cars begins with a thorough understanding of the functional and system specifications, and identification of potential hazards that could arise from sensor functional insufficiencies or extreme weather. To mitigate these risks, modifications such as integrating reliable sensors that work in extreme weather are implemented. These modifications are tested and validated against a database of edge cases to ensure acceptance criteria are met. New technologies such as AI, machine learning (ML), deep learning, and generative AI can play a crucial role in building the database. They can help overcome the challenge of virtual simulations with limited real-time data. They can also aid in training and testing AD neural networks against the scenarios in database. With the knowledge bank thus created, OEMs and part makers can help achieve the target of reducing unknowns, increase the

coverage against known hazardous scenarios, and improve the roadworthiness of autonomous vehicles. Compliance to safety standard is key to building trust in autonomous vehicles. The journey toward safe and reliable self-driving cars is fraught with challenges. Compliance with safety standards ISO 26262 and SOTIF can significantly reduce the risks of accidents and associated liabilities. Together, these guidelines can provide OEMs an assurance framework, build confidence in autonomous vehicles, and help deliver on the promise of safe and convenient mobility for all. Virtual validation for efficient autonomous driving testing Exploring deep learning and its benefits for autonomous vehicles Kautex's One-stop Automotive Software Development for Green Mobility Leveraging digital threads to unlock the value of product data 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 =====================

Reimagining the operating model for Finance: GenAI in FP&A

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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. 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. Today, finance leaders' influence on their organization's growth is significant. They play a pivotal role in steering their companies through potential economic disruptions and geopolitical uncertainties, and identifying avenues for growth and improving operational effectiveness. As they look to balance growth and risk in a dynamic business environment characterized by complexity and uncertainty, new technologies such as GenAI can help them make strategic decisions to power business innovation and finance transformation. GenAI has immense potential to transform the finance value chain and enhance organizational agility. However, finance leaders should not fall prey to "FOMO" or "action bias." They must realize that the key to successful AI implementations is identifying strategic functions and processes where the technology can unlock the maximum business value. In the recently conducted TCS Future of Operations Survey, 90% C-suites cited that the top criterion for successful technology deployment is alignment of the right technology to the right processes. GenAI and FP&A are made for each other. GenAI excels in tasks such as handling large datasets, analyzing complex patterns, and generating detailed reports. One of the key finance functions that is ripe for disruption by generative AI is financial planning and analysis (FP&A) as the critical tasks under this function involve forecasting, budgeting, and analyzing financial data that helps strategic decision-making. While traditional AI models have been around for the past decade, they struggle with complex language generation and might require more manual input for report creation. Compared to traditional AI models, GenAI offers improved natural language understanding in the domain of FP&A along with more efficiency and scalability. GenAI solutions can enhance the FP&A function by generating natural language text, automating report writing, and providing insights from large datasets. Generative AI has the potential to revolutionize financial decision-making by automating repetitive tasks, augmenting human capabilities, and providing more accurate and timely insights for decision-makers. It can help organizations improve their financial planning processes, enhance forecasting accuracy, optimize resource allocation, and gain deeper insights into financial performance, risks, and opportunities. GenAI can be a game changer for FP&A. Some of the key use cases are: To enable entirely new ways of working with GenAI, organizations need to fundamentally redesign their operating model. The new digital operating model should be built on core foundational elements that enable an organization to quickly: In the context of FP&A, GenAI tools can be leveraged to automate data convergence and self-healing of data issues. They can sift through large volumes of structured and unstructured orders, contract data, and terms of payments to create a cash flow outlook or recommendations for cash conversion cycle optimization. Not just that, they can apply experiential learning from prior customer behaviors or seasonality to predict major P&L and balance sheet

changes. GenAI models can also detect anomalies in financial reports and professionals can then intervene to assess and fix them. Simultaneously, teams can be established to train the models to further improve results and efficiency. This means finance teams can focus more on business strategy, while time-consuming and repetitive tasks can be automated using these cutting-edge tools. Most organizations today are in the early stages of experimentation with GenAI. An operating model aligned to the organization's long-term strategies, goals, and objectives can help organizations unlock the full potential of GenAI. To understand the efficacy of the model, organizations should have well-defined key performance indicators and reporting mechanisms, and a framework that facilitates decision-making processes. At the same time, they should take into careful consideration the ethical, legal, and privacy implications to ensure responsible use of AI technologies in financial decision-making. Unlock Business Agility and Future-ready Operations with TCS Intelligent Automation: 7 Ways to Supercharge It The Six Design Tenets of Future-ready Enterprise Operations 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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Bridge beyond reality: AR and ERP elevating global tourism

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Gamification: Augmented Reality (AR) games and challenges are one of the most popular ways to engage travelers. Through AR apps, travelers can join scavenger hunts, quiz games, and photo challenges. While SAP is primarily known for ERP solutions, its ability to integrate with other technologies offers significant potential for the tourism industry. When combined with AR, SAP can provide a robust platform for managing and enhancing tourist experiences. How it works Potential use cases Challenges and considerations The convergence of SAP, AR/VR, and tourism presents a compelling opportunity to redefine the travel experience. By leveraging ERP's robust data management capabilities and AR's immersive potential, the tourism industry can create hyper-personalized, efficient, and engaging visitor experiences. Integrating these technologies offers a promising future for the sector, from interactive guided tours and personalized recommendations to streamlined operations and enhanced customer service. However, realizing the full potential of this combination requires careful planning, addressing data privacy concerns, overcoming technical challenges, and ensuring seamless user experiences. As technology continues to evolve, we can anticipate even more innovative applications (next-generation IoT, big data and analytics, blockchain, and GenAI) that will shape the future of tourism. By embracing the synergy between ERP, AR, and tourism, businesses can gain a competitive edge, foster customer loyalty, and contribute to the industry's growth. TCS ERP on Cloud for SAP Landscape Migration and Modernization Augmented Reality Transforms Manufacturing Execution Systems Tapping into Augmented and Virtual Reality to Empower Field Service TCS Partners with WWF-Singapore to Launch Augmented Reality Tiger Trail Exhibition in Singapore 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 =====================

3Ps: Essential for seamless SAP infrastructure provisioning

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firmed and agreed upon in the build sheet, they are plugged into an automated code. Automation makes the realization of agreed-upon building blocks faster and error-free. This is the final step, where the code is fired up, and the resources, as per the build sheets, are deployed. It then undergoes a thorough internal quality check, runs through all security prechecks, and is finally released for application configurations. Things have evolved in multiple facets from the decade back of on-premises setup to private cloud and now public cloud SAP infrastructures. Technical configuration, setup complexities, maintenance cost, security, legal, time to market, and many more. Every evolution taught us a lesson to learn and adapt. The latest is the AI revolution, which will continue bringing up new art of possibilities. Our focus would now be to add an "A" and "I" to our 3Ps approach and continue exploring the art of possibilities with our customers. Step-by-Step Guide to Choose the Right Cloud ERP for Your Business PreCast: Accelerating Migration and Greenfield Implementation TCS ERP on Cloud for SAP Landscape Migration and Modernization TCS' ERP on cloud platform to help wavin drive growth in new markets 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 5G and edge computing are key to business transformation

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accelerate business transformation. With a pre-integrated cloud-edge platform that provides the required security and interface capabilities across different computes, organizations can focus on developing distributed applications utilizing the cloud and the different edge computes which can solve the business transformation use cases. Instead of moving 'everything to the cloud', enterprises would do well to go for a mix of cloud and edge environments, integrated on a 5G network. Such environment will provide them the flexibility to select compute that's best suited for various use cases based on their business needs. TCS Launches Enterprise 5G Edge Suite with Azure Private Multi-Access Edge Compute TCS Launches 5G-Enabled Cognitive Plant Operations Adviser to Help Transform Plant Operations Gain an edge with distributed cloud and edge computing Why 5G and edge computing are key to retail success 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 =====================

Mastering multi-cloud monitoring for reliability and savings

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Kritika Abrol Senior engineer (Cloud technology solutions and machine learning) You have these already downloaded We have sent you a copy of the report to your email again. Cloud computing is closely intertwined with modern business operations, enabling organizations to scale, transform, and remain competitive in the digital era. However, the cloud's dynamic nature requires robust monitoring to ensure performance, security, and cost-effectiveness. Cloud monitoring is a critical practice that empowers businesses to optimize their cloud resources, detect anomalies, and proactively address issues. Organizations can choose the best-suited cloud providers and services for their specific needs. Multi-cloud setups allow organizations to select cloud providers based on cost, performance, geographic availability, and compliance requirements. Managed service providers (MSPs) play a multifaceted role in cloud monitoring, encompassing proactive monitoring, resource optimization, cost management, security, compliance, and more. MSPs bring expertise in proactive monitoring, alert management, resource optimization, cost management, security and compliance, patch management, backup and disaster recovery (DR), scaling and performance optimization, and reporting and analytics. Some of the MSPs have developed specialized tools such as remote monitoring and management software, backup and recovery software, and other tools to help organizations harness the full potential of the cloud while ensuring efficient operations and a secure, well-managed cloud environment. While cloud-native tools offer capabilities within a single cloud provider's ecosystem, third-party tools provide a broader and more flexible monitoring solution for organizations with diverse multi-cloud and hybrid cloud environments. Third-party monitoring tools are flexible and adaptable. They can monitor cloud-native services and on-premises infrastructure, containers, and other technologies —making them suitable for diverse IT environments. Unified multi-cloud monitoring is a strategic approach that empowers organizations to efficiently manage and optimize their cloud resources, enhance security and compliance, and make informed decisions across their entire multi-cloud or hybrid-cloud ecosystem. It simplifies the complexities of multi-cloud operations and ensures that organizations can harness the full potential of their investments. Such monitoring platforms consolidate data and metrics from various cloud providers, regions, and services into a single dashboard. This centralized view allows IT teams to monitor cloud resources' health, performance, and security from one place, reducing complexity and simplifying management. Despite the cloud's myriad benefits, unmonitored usage can lead to unexpected costs. Cloud cost monitoring and optimization have become strategic imperatives for businesses, especially those with multi-cloud

setups. Integrated cost monitoring tools with features such as multi-cloud cost visibility, cost allocation, resource optimization, and the ability to forecast cost help organizations control expenses, allocate resources efficiently, and derive maximum value from their cloud investments. Metrics are measurements or numerical values that represent specific attributes or characteristics of a system, such as CPU utilization, memory usage, disk input or output (I/O), network bandwidth, error rates, and more. Metrics are collected at regular intervals. A snapshot of the system's state at a particular moment is also obtained through metrics. Flow data, often referred to as network flow data, provides information about the interactions between devices, applications, and users within a network. Flow data includes the source and destination of IP addresses, protocols, ports, and the volume of data transferred. It helps understand traffic patterns, identify network anomalies, and monitor the behavior of devices and applications. Combining metrics and flow data can allow organizations to associate the relevant performance metrics with traffic patterns. This helps in understanding how changes in traffic volume impact the performance of applications and services. Security incidents (data breaches or network intrusions) can be detected more effectively when resource utilization metrics and network flow data are considered together. Organizations can derive various benefits if cloud monitoring is done right. Some of the benefits are: In essence, multi-cloud monitoring is not merely a technical function but a strategic imperative for businesses leveraging diverse cloud setups. By defining clear objectives, selecting the right tools, and implementing comprehensive monitoring practices, organizations can optimize their multi-cloud environments for performance, availability, security, and resiliency. The Future of AI in India: A Revolution in Social Empowerment Sodexo Selects TCS ERP on Cloud Platform to Drive Future Growth TCS Platform helps Ampleon Use ERP-on-Cloud to Drive Business Agility TCS ERP on Cloud for SAP Landscape Migration and Modernization 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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Synthetic data revolution: GANs transforming AI and privacy

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encoding form using a Gaussian mixture or random distributions. The transformed one hot encoded trained TGAN has different architecture models, such as Conditional TGAN (CTGAN) and Wasserstein GAN (WGAN). Currently, the CTGAN model is the most popular, as it internally uses a Gaussian mixture model for one hot encoding of the data. The CTGAN model supports numerical and categorical data only. However, the CTGAN model must be combined with other text data generator algorithms to have a synthetic data platform to support different data types. There are open-source models like "Faker"; however, they might not support domains and geographical data. Although some large language models (LLMs) support text data, there is still considerable scope for improvement. Hence, it is recommended that an orchestrated platform with CTGAN and proven random text-based algorithms be built to generate synthetic data for all various data types. The buzz is that soon, newer models will emerge to support a single platform for synthetic data generation.   Data Anonymization in AI-Based Models: FHP and DP Enable Data Privacy Using Software-based Approach for Data Masking Data Anonymization in AI-Based Models: FHP and DP Framework for Next-generation Test Data 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
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Future of supply chain: Connected, green, and tech-enabled

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Automation: 7 Ways to Supercharge It The Six Design Tenets of Future-ready Enterprise Operations 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 ======================

Revving up automotive marketing with GenAI

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company announcements. Anirban De Business consultant, Manufacturing, TCS You have these already downloaded We have sent you a copy of the report to your email again. The transition toward electric vehicles, software-defined vehicles (SDVs), and autonomous-driving capabilities is changing the way automakers market their products. Generative artificial intelligence (GenAI) holds the potential to revolutionize automotive marketing by bringing in hyper-personalization and creative engagement strategies to attract the customer. That is a critical shift from traditional AI, which focuses mostly on data analysis and automation. By leveraging GenAI, OEMs can transform customer experience to outperform their peers in an increasingly competitive and dynamic market landscape. It is no longer about just collecting information in the GenAI era. It is about transforming that data into personalized narratives that speak directly to individual consumers and resonate with them at a deeper level. By analyzing vast amounts of data, which include browsing history, purchase patterns, and social media activity, GenAI can create dynamic customer profiles that will drive highly targeted marketing efforts. This approach enables brands to deliver content that will be highly relevant to a customer. GenAI transforms vast data sets into personalized narratives that resonate with individual consumers, driving highly targeted and relevant marketing efforts. The technology can provide carmakers unparalleled insights into their customer base. Modern vehicles are often described as 'software on wheels,' driven by millions of lines of codes and aided with sensors. Those sensors provide information on how customers use their vehicles and what might be the value-added services they seek. For example, an automaker is launching a new line of electric vehicles (EV), targeted at environmentally conscious urban professionals. GenAI allows the brand to create a personalized marketing campaign for a potential customer, who frequently engages with sustainability content online and drives a small, aging hybrid car. Since the customer is interested in reducing his carbon footprint, GenAI crafts a personalized advertisement showcasing the new EV's environmental benefits, such as its zero-emissions features and the availability of green charging stations near his home. This advertisement does not just provide information, but also resonates with the buyer's values and lifestyle. There are, of course, concerns around data privacy and industry regulations, while managing large-scale operations, that need to be addressed when implementing data-driven personalization. Through avatar-based personalization, GenAI offers immersive, interactive experiences that strengthen the relationship between consumers and automotive brands. By allowing users to see the digital representations of themselves interacting with a vehicle, GenAI offers a deeply immersive and engaging experience. Avatar-based personalization also moves beyond traditional ads, providing a memorable interaction that strengthens the connection between the consumer and the brand. As GenAI continues to evolve, integration with augmented reality (AR), virtual reality (VR), and the internet of things (IoT) will only expand the possibilities for avatar-based personalization, offering even more sophisticated and engaging consumer experiences. For example, GenAI will allow a customer to create a digital avatar of himself that mirrors his appearance and lifestyle. He sees his avatar driving a new EV through a virtual cityscape that mirrors his urban environment. The avatar navigates typical city traffic, showcasing the vehicle's regenerative braking and energy-saving features. This experience not only highlights the car's

capabilities but also helps the customer visualize how the EV could seamlessly integrate into his daily life. The advertisement can end with a call to action to book a test drive at the nearest dealer point at the earliest available date for the customer. But again, to develop this level of avatar-based personalization requires significant technological investment and careful attention to privacy and data security. Predictive analytics enables automotive brands to anticipate trends and personalize the entire customer journey, ensuring marketing strategies remain relevant and impactful. GenAI can help automotive brands anticipate and respond to market trends. By analyzing emerging consumer behaviors and preferences, it can help brands stay ahead of the curve. That also enhances customer satisfaction and brand loyalty. For a buyer who purchases an EV, GenAI uses predictive analytics to anticipate his next steps. Recognizing a growing trend in eco-friendly vehicle purchases among urban professionals, a GenAI-based system will suggest tailored financing options that emphasize long-term savings on fuel and maintenance. Additionally, it could propose to the customer personalized service plans that offer home installation of a charging station, ensuring a seamless transition to EV ownership. A point worth noting here is that predictive models must be continuously updated with fresh data to ensure their accuracy, and integrating these insights into broader marketing strategies requires coordination across various functions. While these opportunities are exciting, automakers must tackle the challenges that lie along the way. For a start, implementing innovative technology requires substantial investment and the integration of GenAI with existing systems can be complex and resource intensive. As stricter regulations on GenAI come into effect globally, companies will have to comply with robust data privacy and security laws to meet regulatory requirements while also managing large scale data operations. Creating avatar-based personalizations can be capex intensive for many companies and predictive models must be continuously trained with fresh data to maintain output accuracy. By navigating these challenges with careful planning and a focus on innovation, automakers can leverage GenAI to build stronger connections with their customers, drive engagement, and position themselves at the forefront in the industry. The future is not just about adapting to change but about shaping it—and GenAI offers the tools to do just that. Next-gen Technologies and their Role in the Future of Mobility The connected automotive ecosystem How Enterprise Gamification is Redefining Employee Engagement TCS Mobility Suite: Easing the Development of Autonomous Vehicles 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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Art of SAP monitoring: Best practices for peak performance

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precisely tracking key application KPIs to achieve high availability, reduce downtime, improve performance, and maintain overall system stability. Proactive, integrated monitoring rather than reactive monitoring is the key here. Early failure detection can prevent a complete shutdown of SAP systems. The blog covers vital points that SAP administrators must consider while devising their monitoring strategy. System availability indicates whether an SAP application is online and available to users. Monitoring should include all the application instances configured in the SAP landscape. It should also cover the underlying physical server/VM, connectivity, and database. Monitoring will only be effective if automated tools track the parameters in real-time and generate alerts with log details for a quick resolution. If the underlying databases aren't appropriately managed, SAP application instances can cease to work. For example, if the database size is full, all running transactions are terminated, and the database with related applications becomes unavailable for users. The database must be backed up regularly for easy data recovery and to restore applications quickly. It can experience slowness while taking a backup due to the long gap between backups. Database Admins (DBAs) should monitor the time taken for backup, the success and failure of the backup process, and the recoverability of backups. DBA's work continues. They must investigate expensive and active SQL statements running in the databases. If these statements continue to run for a long time, businesses can lose a lot of money. Additionally, one should keep a tab on the database's growth, response time, cache hit ratio, and expensive and active SQL statements to keep the database system healthy and performing efficiently. Application performance is linked to employee productivity and business revenue. Not monitoring it may lead to slower response time, system overload, and unplanned downtime. Automated tools help proactively monitor KPIs (CPU utilization, memory utilization, user load, etc.) and alert administrators to take necessary action. Crucial transaction monitoring is required to ensure a healthy and stable SAP application. It helps keep the systems running, minimize downtime and service outages, and eliminate business impact. Automated monitoring of all crucial transaction codes (ABAP dumps, failed jobs, SSL certificates, etc.) reduces issue leakage, monitoring effort, and troubleshooting time. Interfaces transfer critical data related to payroll, finance, accounting, and other vital business processes. If data delivery fails, it leads to fulfilment and compliance issues. Monitoring the end-to-end flow of all the business-critical interfaces configured within the SAP system is necessary. Key interface monitoring areas include verification of RFC connections for all critical RFCs, transactional RFC, inbound/outbound queue RFC, and others. Tools that give a view of the customer's entire system landscape with the availability status of configured applications, databases, business-critical interfaces, and other aspects should be considered. To conclude, SAP administrators must define and track the KPIs while devising their monitoring strategy. Tracking KPIs through automated monitoring and using the right tools is crucial for improving system performance and availability, minimizing the risk of downtime and business disruptions, and enabling the smooth functioning of SAP applications. Integrated ITSM and ITPM: Enabling Seamless Change Management Multi-Cloud Monitoring: Ensuring Reliability, Maximizing Savings The Role of AI/ ML in APM: Why They Matter? The Future of AI in India: A Revolution in Social Empowerment Register for our email newsletter to get the freshest

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Talent transformation for today and tomorrow

----- Arcticle source ----- https://www.tcs.com/insights/blogs/talent-transformation-today-competitive-edge ----- Highlights In this article Humans are central to digital transformation Why talent transformation? Shaping the talent transformation agenda Change is constant 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 Global Head of Cognitive Business Operations You have these already downloaded We have sent you a copy of the report to your email again. Digital disruption fundamentally transforms enterprises' operations, profoundly impacting existing products, business models, services, and markets. While there is no doubt that the advent of cutting-edge technologies like AI, generative AI, and machine learning opens immense

opportunities, humans are at the heart of driving this change, as operationalizing digital solutions requires a tech-savvy and future-ready workforce. Enterprises often rush into adopting the latest trending technology for fear of missing out (FOMO) without assessing the existing capabilities of their workforce. The unavailability of a trained workforce can quickly make any technology adoption exercise a liability instead of an asset for the organization. Talent transformation has become more critical now than ever before. As demand for new-age digital skills continues to skyrocket, the supply of qualified talent is struggling to keep pace. The demand-supply disequilibrium is driving companies to rethink their talent strategies and invest heavily in upskilling and reskilling their workforce. Companies that fail to prepare their workforce for the future risk losing ground to their more agile competitors. Therefore, talent transformation has emerged as a priority for organizations across all industries like never before to maintain a competitive edge. Shaping the talent transformation agenda needs a renewed look at the critical imperatives for today and tomorrow. Let's take a closer view: AI/GenAI in talent transformation Integrating AI and GenAI into business operations is no longer futuristic but a present-day reality. Enterprises increasingly leverage AI to identify skills gaps within the organization and identify future training needs. Virtual assistants powered by these technologies provide real-time support to learners by answering questions and guiding them through the learning journey. These tools also allow organizations to measure the effectiveness of their learning initiatives through AI-powered predictive analytics. AI and Generative AI facilitate informed decisions about talent management, workforce planning, and employee engagement, which are critical in shaping a future-ready workforce. Reimagined learning (digital, experiential, and personalized) Online learning platforms are replacing traditional learning models through physical training sessions and workshops with built-in learning management systems to facilitate continuous skill development. Such platforms add fresh content and update courses continuously, fulfilling employees' need to be constant learners. Additionally, it gives learners the flexibility to learn at their own pace and schedule. Technologies like AR/VR enable learning and training programs that simulate real-life scenarios. Immersive audio and video content, gamification, and social learning are embedded into training programs, making the learning experience more engaging. Hackathons, Codeathons, and capstone projects that incorporate real business use cases are other ways of enhancing the effectiveness of training programs. Content personalization fulfills the need for an individualized learning path pivoted to an employee's role, career goals, and skill gaps. This ensures that the training is relevant and directly applicable to their work. By leveraging AI and Generative AI and machine learning, adaptive learning platforms can adjust the content in real-time based on the learner's progress, providing a more effective and engaging learning experience. Furthermore, Generative AI can also create personalized learning modules, recommend courses, and customize training paths to boost learning outcomes. Human-centric talent transformation Embracing the human aspect of talent transformation and focusing on employees' holistic well-being is fundamental to an organization's long-term success. This involves considering employee morale, satisfaction, and career goals and inculcating an environment of continuous learning while crafting talent transformation programs.

Advanced sentiment analysis techniques that can interpret emotions across multiple channels are vital in helping HR leaders gauge employee sentiments and learning outcomes. They also bring in the right interventions to build a positive work environment and motivated workforce. Reimagined talent acquisition Organizations are increasingly adopting innovative approaches like aligning recruitment strategies with long-term business goals and leveraging data analytics tools for candidate assessment to attract and acquire talent with next-generation skill sets to stay agile in response to evolving market and technology demands. Talent acquisition extends beyond recruitment of existing skills, as it involves building a workforce with learning agility and problem-solving capabilities. A data-centric approach, enabled by technologies like AI/GenAI to derive key strategic insights, can help organizations understand how they can hire high-quality candidates to maximize impact. Sustainable talent transformation An adaptive mindset will be a key differentiator in a constantly evolving world of business and technology. An organization's talent development agenda should focus on agile decision-making, experimentation, and continuous learning skills that drive such a mindset. This needs collaboration and networking coupled with a pervasive culture of knowledge sharing. Leaders must champion a culture of continuous learning and be role models for adaptability. Effective leaders can inspire their teams, encourage a growth mindset, and create an environment where innovation thrives. Talent transformation is about balancing current and future skills, and it is an ongoing journey. The future of work will be defined by continuous learning, adaptability, and resilience. Organizations that embrace these principles will be well-positioned to navigate the challenges and seize future opportunities. In this dynamic landscape, the only constant is change, and the key to success lies in the relentless pursuit of knowledge and innovation. The Role of AI in HRMS Industry Cybersecurity: The new frontier in the digital age Transforming Space Tech Operations Using STAR and ORBIT Frameworks Innovative Companion Apps: Helping Millions Achieve a Smoke-free Life 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 =====================

Changing application development and LCNC with generative AI

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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. Rex George 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. Rex George Product Consultant, TCS MasterCraft™ You have these already downloaded We have sent you a copy of the report to your email again. Industries and business functions have jumped onto the GenAI bandwagon and are actively looking for use cases where this magic wand can be waved. For IT, the high-value use cases are clearly in the areas of code generation, synthetic data, and the creation of artifacts such as test cases and scripts. Predictions from Gartner® for the future of GenAI use in their study mentions "By 2027, nearly 15% of new applications will be automatically generated by AI without a human in the loop. This is not happening at all today." Ready to use: The lure of GenAI is that their solutions are like fast food - they come with various tasks that can be consumed straight out of the box. Leveraging pre-trained Large Language Models (LLMs), particularly in the realm of code generation, GenAl offers a seamless experience, with hyperscalers wrapping cloud solutions around them. These LLMs, trained on vast source code, can swiftly generate software based on plain English prompts. This approach radically differs from traditional code generation methods, which require intensive pre-processing efforts. These new entrants disrupt the LCNCIDT (low code no code and intelligent developer tools) market as GenAl initially manifests itself as intelligent assistants or copilots, enhancing the developer experience. Re-imagined user interfaces: Machines now comprehend human languages, marking a significant advancement from developers learning low-level to high-level languages for computer interaction. Future conversations may shift to voice-based, more human-like interactions with versatile user interfaces, altering development approaches. The future UI will be primarily chat-based, as end-users will no longer want to learn how to use a brand-new software interface when they can communicate with it like a regular person. Today, developers utilize various integrated development environments (IDEs) for coding in languages such

as Java, .NET, and Python alongside multiple tools for testing, packaging, and deploying applications, with chat-based interfaces augmenting SDLC touchpoints. Low-code platforms should, therefore, stay ahead of the curve in driving these innovations in the way tomorrow's applications are created and consumed. Empowerment: The biggest excitement around GenAI stems from the fact that it puts the power to create into the hands of the users. The grail is for citizen developers to be able to develop complete working applications and host them independently. Creativity: Traditionally, good, old-fashioned AI (GOFAI) and ML techniques were good at classification (sorting) and regression (making connections). With GenAI,they have started generation (text, sound, images, and video). This is a paradigm shift, even for many AI experts who had maintained that creativity would be the final frontier for AI until recently. GenAI is already being applied to generating and aiding designs in the automobile, manufacturing, and healthcare industries. It is expected that nearly 60% of design efforts for building new websites and mobile apps can be performed by GenAI. The key role of GenAI in application and test case design would be to quickly generate multiple options during the ideation process to assist the designer. GenAI implications Some of the capabilities that are being explored include: While GenAl holds promising potential, it poses evolving risks such as factual inaccuracies, biases, and security concerns. With AI-generated code, quality may suffer, which in turn leads to increased technical debt. Service providers address these issues with citations and contextualization. Implementing GenAl responsibly in enterprises requires pragmatic approaches and guardrails. LCNC platforms can leverage traditional code generation practices and GenAl models to ensure usability, correctness, security, performance, maintainability, and compliance. Key strategies include facilitating access to pre-trained LLMs, integrating open-source models like Hugging Face, and enhancing results through fine-tuning, retrieval augmented generation technique (RAG), and knowledge integration. Maximize the Benefits of Specification-Driven Development TCS MasterCraft™ Rapid Application Development TCS MasterCraft™ Legacy Modernization to Stay Relevant and Modern UI and UX Modernization – Totally Worth the Investment 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 =====================

Unlock business growth with sustainability reporting

----- Arcticle source ----- https://www.tcs.com/insights/blogs/sustainability-intiatives-turning-customers-advocates ----- Highlights In this article A surprising game changer for sustainability Radical reporting transparency A balanced focus on the ESG pillars Improved employee satisfaction and brand

value Automated frameworks and off-the-shelf tools The win-win proposition with ESG reporting 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. Vinayak Gole 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. Vinayak Gole Global Head of Emerging Technologies, Strategic Initiatives (Assets), Enterprise Services Unit You have these already downloaded We have sent you a copy of the report to your email again. Most companies make the mistake of looking at their sustainability initiatives as compliance exercises. Often, sustainability programs that have been developed, implemented, and inevitably retired, do nothing for the company but just meet corporate mandates. It is time to rethink this. The top-performing companies with vibrant environmental, social, and governance (ESG) programs understand that sustainability initiatives can tap into potential markets, optimize existing ones, and win unparalleled levels of customer and employee engagement and advocacy. But how are these companies turning a compliance exercise into a powerhouse for performance and growth? The surprising answer is that enterprises' reporting strategy—the manner, speed, and transparency they bring to reporting—is a game changer for companies looking to benefit from their ESG efforts. Global investors, customers, and regulators are looking for radical transparency from companies about their sustainability initiatives and performance. Programs must demonstrate how they create value and offer fresh growth opportunities. A key challenge to reliable reporting is data lineage or the ability to track data back to the source. With ESG data, tracing lineage is even more challenging since there are diverse data sources. Building a transparent reporting model will enable key stakeholders and authorities to legitimize ESG initiatives within a company.

Reporting on ESG key performance indicators (KPIs) can eventually drive companies to develop responsible products, sustainable supply chains, and respectable employment. Balancing all three ESG pillars is essential for holistic and sustainable business practices. Environment is most often the focus of ESG discussions. But there is more value to be mined if your program considers the social and governance areas equally important. A company that has a well-established environmental record, but poor social and governance practices is not truly sustainable. Consider a company with excellent recycling programs but poor labor practices and weak board oversight. While it may reduce waste, exploiting workers and lacking accountability can lead to strikes, legal issues, and mismanagement. This imbalance ultimately threatens the company's long-term success and sustainability initiatives. Social and governance factors contribute significantly to a company's performance by analyzing the company's financial standing, impact on society, and compliance of internal operations. Social and governance factors also affect a company's risk profile. Companies with poor processes and practices in this area are more likely to be exposed to risks such as lawsuits and fines arising from non-compliance. This might have an adverse impact on the company, making it lose customers and investors. Employees are increasingly looking for companies that have strong ESG sustainability practices. Employees are brand ambassadors for companies high on social standards, indirectly influencing brand equity and market standing. Employees who are engaged with ESG initiatives may feel like they are part of something bigger than themselves, and that their work has special meaning. This can lead to increased trust in leaders, making it easier to attract and retain talent. For example, companies with strong ESG standards often have better workplace safety protocols, which can reduce accidents and improve worker health. This can lead to increased job satisfaction and morale. Several frameworks and standards as well as AI/ML and analytics-powered solutions can propel companies' ESG compliance journey. There are several frameworks and standards that can help organizations jump-start their ESG compliance journey. Some of the most common frameworks include the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the European Sustainability Reporting Standards (ESRS) to name a few. Developing KPIs adhering to these standards has traditionally been a manual effort for maintaining and transforming ESG data. Over the last few years, however, a host of tools and solutions that optimize operational sustainability, resilience, and efficiency have become available, such as SAP Sustainability Control Tower and Oracle Fusion Cloud Sustainability, to name a few. These tools provide artificial intelligence/machine learning (AI/ML) and analytics-powered capabilities and command center consoles for climate action, enterprise resilience, reporting on water and energy consumption, and transportation emissions. Companies are also focusing on eco-friendlier practices as consumers drive the sustainability movement with lifestyle and behavioral changes. As countries set up compliance norms to align with their global sustainability commitments, the ESG activities of enterprises play a key role in meeting these objectives and elevating sustainability initiatives on a global scale. Enterprise solution software providers have embedded sustainability into their core business processes. Solutions such as SAP Environment, Health, and Safety Management and SAP Sustainability Footprint Management can monitor ESG performance,

identify risks, and, in turn, help enterprises make sustainable decisions. System integrators play a key role in delivering KPIs aligned with relevant frameworks built on enterprise solutions. ESG reporting is essential for meeting your enterprise sustainability goals. Companies often perceive that ESG reporting is complex and time consuming. Effective ESG practices along with rigorous data collection practices that generate results are changing this perception. Organizations looking to fulfill their social sustainability commitments of people, planet, purpose, and improved growth stand to gain immensely when they implement ESG practices. A key challenge to meeting sustainability goals is reliable data. A data framework with transparent reporting practices will enable organizations to measure progress against targets while continuing to meet compliance requirements. Organizations should relook at their existing data strategies to incorporate the right ESG data within their data architecture. This will ensure not just transparency in reporting but also enable the organization to transition to truly sustainable products and solutions. TCS Product Life-Cycle Profiler: Making Businesses More Sustainable Sustainable Business Transformation: Building a Better World Creating Sustainable Organization Data and Analytics to Help You Win Big on Sustainability KPIs 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 generative AI for sustainable procurement

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cultivating ethical supply chains, and positioning businesses as key drivers of global progress. Going forward, aligning procurement strategies with the SDGs will strengthen organizational resilience and play a crucial role in shaping a more sustainable world for future generations. TAP™: A Cloud-based AI-powered Source-to-Pay Platform Hawaiian Airlines scales new heights with TAP™ TAP™ enables OMV to digitize invoice processing Achieving Sustainable Procurement by Adopting Five Procurement Mantras 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 technology is empowering smokers to kick the habit

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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. Pallab Datta Head, TCS Pace, Canada You have these already downloaded We have sent you a copy of the report to your email again. In today's health-conscious society, the phrase 'health is wealth' is part of our cultural zeitgeist. Despite statistics indicating that the number of smokers has dramatically declined over the past decade, smoking remains a significant public health challenge, responsible for over 7 million deaths globally each year. In Canada alone, approximately 15% of the population still smokes, despite widespread awareness of the associated health risks. Compounding this issue, smoking is a leading cause of preventable diseases, contributing to substantial healthcare costs and loss of productivity. To battle this bad habit, technological advancements and government initiatives are converging to provide effective solutions. This article explores how innovative companion apps and proactive governmental strategies are revolutionizing efforts to help individuals quit smoking, ultimately enhancing global well-being. Governments around the world are taking various innovative, technology-based approaches to support smoking cessation. For example, the US, UK, Australia, and Singapore all offer free apps to provide support and guidance to their citizens as they endeavor to quit smoking. The Canadian government has been a leader in integrating technology into its efforts, and its commitment of $66 million annually since 2018 underscores its dedication to the cause. Canada's approach includes not only public health campaigns but also the promotion of advanced apps that provide real-time support and personalized quit plans. Government involvement is critical to smoking cessation initiatives; here's how they are providing their support: New technologies continue to emerge, enhancing the effectiveness of the aforementioned measures. Some of the promising innovations on the horizon incorporate: Companion apps, designed to provide personalized support, resources, and motivation to individuals trying to quit smoking, represent a significant leap in leveraging technology to improve health. TCS Pace Port™ Toronto's Hpuff app offers innovative features such as: The fight against smoking is a global one, and the integration of technology into the cause is proving to be a game-changer. Companion apps are at the forefront, offering personalized support, real-time assistance, and community engagement. Governments worldwide are recognizing the potential of these innovations and are taking proactive steps to incorporate them into their public health strategies, ensuring that individuals have the resources they need to quit and improve their overall health. And as technology continues to advance, new innovations are poised to further enhance these endeavors and support millions on their journey to a smoking-free life. The Rise of Digital Companions in Healthcare and Pharma Patient-centered Care: Health and Wellness Redefined Delivering holistic and enhanced Health and Human Services Capabilities Homebound mobile health app: enabling remote monitoring of patients 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

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What does EU's CSRD regulation mean for your business?

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listed on a stock exchange in the EU, regardless of where they are based. It also applies to EU companies that meet at least two of the following criteria: Finally, companies based in third countries—outside the EU—are also in scope for CSRD if they generate €150 million annually in revenue in the EU or have a branch in the EU generating €40 million in net turnover. To comply with CSRD, companies must fulfil the following requirements: CSRD builds upon and works with existing sustainability standards. CSRD builds on the requirements of existing sustainability reporting standards such as GRI and TCFD, which have been absorbed into the evolving sustainability standard. CSRD does not provide detailed disclosure requirements; instead, it requires EFRAG to develop a standard that builds on what already exists. This measure, the ESRS, was issued in July 2023.

1.   ESRS The first 12 ESRS approved by the European Commission are outlined below: Each business must determine which of these European Sustainability Reporting Standards (ESRS) apply to it by conducting a double materiality assessment. Here are the first 12 European Sustainability Reporting Standards (ESRS) approved by the European Commission Your business must determine which of these standards apply to you by conducting a double materiality assessment. Double materiality differs from single materiality—the normal process for sustainability reporting, or what is required for other sustainability standards—in that it covers both of the following aspects: Double materiality therefore covers the external impacts of your operations as well as the impacts or risks presented by climate change, demographic changes, and issues in the supply chain. In assessing double materiality, you need to look at not just the topic of each of the ESRS modules, but also the sub-topics and sub-sub-topics addressed in each area.   What is notable about ESRS is that it is much more comprehensive than other sustainability standards, with the existing 12 ESRS modules including well over 1,000 data elements. ESRS is also still in progress and is not yet complete. EFRAG is continuing to develop additional standards specific to certain industries and special standards for assurance. 2.   EU taxonomy The EU taxonomy is part of the EU's sustainable finance action plan and another important part of the EU's Green Deal. It is a common classification of economic activities that substantially contribute to the following six environmental objectives: a) Climate change mitigation b) Climate change adaptation c) Sustainable use and protection of water and marine resources d) Transition to a circular economy e) Pollution prevention and control f) Protection and restoration of biodiversity and ecosystems Since January 2022, companies in scope of CSRD have been required to report on the percentage of operating expenditures, capital expenditures, and revenue or turnover that are in alignment with these six objectives. This is to help determine how sustainable a company's economic activity is and provide investors with the information needed to make sustainable investment choices, thereby driving capital to sustainable businesses. For an economic activity to be deemed as sustainable in alignment with the EU taxonomy, it must make substantial contributions to at least one of these objectives and have no detrimental effect on the other five. 3.   The International Financial Reporting Standards Foundation (IFRS) Many companies in scope for CSRD, both in the EU and in third-party countries, have stock exchange listings in other jurisdictions. This means that many need or want to also report using the sustainability standards from IFRS. These are: These standards largely overlap with the ESRS climate module.

However, IFRS and ESRS use different materiality lenses, with IFRS using only financial (and not impact) materiality. The IFRS sustainability standard will continue to build out, with more topics in coming years. There is an intent to maintain a high degree of interoperability with ESRS. 4. Corporate Sustainability Due Diligence Directive (CS3D) On March 19, 2024, the EU adopted CS3D. This directive established requirements for some—but not all—companies subject to CSRD to assess the management of adverse impacts regarding human rights and the environment in their supply chains. There is also a requirement to disclose relevant information about a company's suppliers and management or oversight of risks in the supply chain. As part of ESRS E-1, companies need to disclose their Scope 3 emissions, or the emissions generated within their supply chain. CS3D goes a step further, requiring companies to report information about how suppliers are dealing with climate impacts. The importance of assuring and verifying your information. CSRD puts more focus on the quality of the information companies report, and this should be verified through external assurance in the same way as financial reporting. Initially, limited assurance is required, but the intention is that by 2028, this will change to reasonable assurance. Moving towards reasonable assurance governance will require companies to improve the systems and processes they have been using for their ESG or sustainability data. Here's how you can ensure successful compliance with sustainability regulations. As a multinational company with a large European footprint, TCS is subject to CSRD, along with several of our large subsidiaries based in the EU. While complying with the regulations ourselves, we are also working with clients to help enhance their data for CSRD reporting. Our four-stage process is as follows: Step 1. Double materiality assessment: We can help you determine what you need to measure, manage, and disclose in terms of a double materiality assessment. Step 2. Discover and assess: We will analyse your data source mapping, identify gaps in your data, and highlight opportunities for automation. This will reduce errors and ensure that your data is kept up to date. We can then design a 'to-be' architecture and assess which ESG tool is best suited to your needs. Step 3. Implementation: The phased implementation of ESG data infrastructure begins with a detailed design and agile implementation process, followed by enterprise integration. We will then test the solution to verify its operation before handover. Step 4. Support: After handover, we provide ongoing technical support to ensure that your solution adapts as your business needs—or the regulations—evolve. We leverage our experience in all phases of the CSRD journey to fast-track implementation so that you can be sure you have the data and tools to comply with regulations. EU CS3D Regulation: How Companies can Prepare for it Ecosystem-led Approach to Power Your Sustainability Strategy Here's TCS' own sustainability success story Sustainable Business: TCS' Commitment to the Planet 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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A two-pronged approach to excel in space tech

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ecosystems, implementation, and tracking performance. For a start, space technology companies need strategic alignments, technological resilience, alliances, and regulatory compliance. Strategic alignment As part of strategic alignment, firms should ensure that the goals and business objectives are in line with the evolving landscape of the space industry. It should also consider how the company's current products and services can meet the present and future needs of the space Industry. For example, firms involved in battery management systems mostly working for automotive industry, need to understand that the same system can be implemented in satellites. But they need to be aligned and educate themselves for space standards, knowing the minimum and maximum temperature in space, level of confidence required in the system, and average and pick load for typical satellites. Technological resilience It is important to build a repertoire of technologies with a sharp focus on resilience, which can be readily scaled up with minimal expenditure. For example, aircraft makers possess the expertise and technology to create flying machines. However, to break into spacecraft manufacturing, they need to be proficient in space systems engineering, including rocket nozzle design and propulsion with various fuels. Alliance and partnership This will involve close collaboration of the space technology company with research institutes, startups, and even competitors, instead of competing against each other. For example, if a space tech organization needs remote sensing images, it should partner with a satellite service provider and a company that can process satellite data to provide meaningful outputs for the business. Regulatory compliance and responsibility The space sector is subject to strict international regulations and companies in this sector need to establish a framework that adheres to cross-border regulations, while considering environmental impact, sustainability, and international cooperation. For example, India set up its own regulatory agency, Indian National Space Promotion and Authorization Centre (IN-SPACe), an autonomous single window nodal agency within the government's department of space (DoS). If the organization is not involved in space activities but wishes to utilize data extracted from space, they must adhere to specific industry and geographic regulations. The illustration shows the extent to which space technology companies are ready to enter the industry. The readiness relates to the adoption of the STAR framework. A score of 6-9 is considered low, 10-14 satisfactory, and 15 and above as excellent to move to the next level. If the organizations' score is above the satisfactory level, they should move forward with the ORBIT framework. After achieving a satisfactory level of readiness in the STAR framework, which is indicated by the scores ranging from low (6-9), satisfactory (10-14), and excellent (>=15), organizations should move forward with the ORBIT part. This phase emphasizes the implementation of in-house strategies and technologies with different customers while continuously innovating based on feedback. This framework is a set of best practices that companies can adopt to deploy in-house technologies and capabilities. ORBIT stands for opportunity scanning, research and development, building collaborative ecosystems, implementation, and tracking performance. Opportunity scanning Companies should scan the ecosystem and look out for emerging opportunities in the space sector that match their technical or service expertise. This involves arriving at a use case that might involve collecting data, carrying out market research, and identifying the pain points which can be addressed. Once the opportunity is identified, it is essential to adapt

the product or service strategy to meet the customer requirements. For example, digital farming using satellite images is currently experiencing a boom. A business in the corporate sector might come up with a unique software or hardware solution for a specific use case in space operations. Whereas satellite data processing companies might find use cases with agriculture or coal mining firms by helping them track plant infections or quantify pollution levels. Research and development Firms need to accelerate R&D by investing in new solutions and creating proofs of concept (PoCs). They should evaluate the advantages and disadvantages of various strategies to maximize profits while ensuring uninterrupted customer service. For example, an automotive company wants to leverage satellite connectivity for its IoT features. It will thus need to invest in creating a secure network and not rely too much on third parties, as this could lead to glitches or dependencies in future. Building collaborative ecosystem Companies should develop partnerships and engage in knowledge-sharing initiatives within and outside the organization to improve workforce intelligence and remain connected and adaptive. For instance, airline companies, while having solutions in the avionics domain, must maintain collaborative relationships with companies working in other domains such as software services providers, petroleum departments, and meteorological departments to ensure smooth and effective business operations. It is also necessary to have collaborative relations with both the satellite image providers (such as ISRO and NASA) and industry customers paying for processing these images to generate meaningful results. Implementation and iteration The implementation phase is a crucial step to take technology and solutions to the market. That involves launching products or services, engaging with customers, refining the offerings based on customer feedback. Tracking performance and adapting The last phase closes the feedback loop by gathering information from customers and the market to help improve the organization. Space technology companies need to be flexible to adapt to new strategies and monitor their performance constantly in relation to the market needs. Satellite technology has emerged as a critical tool for many industries, transforming and propelling innovation. It has become an indispensable tool for many industries, thus driving innovation. The integration of satellite data with artificial intelligence (AI) and machine learning (ML) algorithms holds immense potential for advanced analytics and predictive maintenance as more sectors use satellite data. For example, autonomous vehicles' real time IoT tracking with satellite communications is redefining the automotive industry. By leveraging satellite communications, farmers can make informed decisions, optimize resource allocation, and improve productivity, while minimizing environmental impact. The possibilities are thus endless. By harnessing satellite technology with generative AI (GenAI), industries can unlock new opportunities, improve efficiency, and stay ahead in an ever-evolving global market. A robust architecture for real-time satellite sensing data Remote Sensing Small Satellites for Infrastructure Monitoring in India Space Technology: Building Sustainable Cities of the Future The Energy Transition: Empowering Utilities to Achieve Net Zero 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.

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Cybersecurity is non-negotiable in a digitalized world

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attack resulted in a financial loss that I could not recover despite all efforts. While frustrating, the incident highlighted how sophisticated and damaging these attacks can be, even for those who consider themselves vigilant. This experience underscored the need to understand the larger cybersecurity landscape and the vulnerabilities we all face. However, my personal story is only an iota of the broader reality. As cyber threats grow in scale and complexity, we must shift our focus from reactive solutions to proactive strategies and emphasize the art of the possible in cybersecurity. As we shift our focus toward global trends in cybersecurity, the narrative becomes even more alarming. Across the globe, cybercriminals are leveraging advanced technologies such as artificial intelligence (AI) to create increasingly sophisticated attacks. No longer must one be an expert coder to orchestrate a cyberattack; AI can easily generate harmful codes that infiltrate weak points in digital ecosystems. The global cybersecurity landscape is evolving at breakneck speed, and there is a stark shortage of skilled professionals to address this mounting crisis. It is not merely about filling roles; it is about cultivating the right skills to combat these ever-changing threats. In a recent global survey, cybersecurity ranked among the top concerns for industry leaders, alongside environmental changes, fake news, and political polarization. This demonstrates that cyber threats are now seen as a significant risk to businesses, governments, and individuals alike. Consider the rise of high-profile cybersecurity firms like Pegasus and Palo Alto Networks, which have captured significant market share in recent years. With a growing number of attacks targeting businesses, governments, and individuals, the stakes are high—both financially and reputationally. A newspaper highlighted that in 2024 alone, 1.1 million cyber-attacks have happened, exposing over USD 200 million to threats in India alone in just four months. In an increasingly interconnected world, the threat landscape in cyberspace is expanding rapidly. High-profile data breaches and vulnerabilities expose critical systems to significant risks, posing challenges to global security, economic stability, and organizational reputations. As we march forward with digital transformation, the stakes are higher than ever. Several data breaches in recent years have highlighted the vulnerability of even the most secure systems. For instance, the CAM4 data breach in March 2020 exposed 10 billion records of sensitive data, information that should never have been available in the public domain. Closer to home, the Aadhaar data breach in 2018 compromised the personal information of over one billion citizens, raising significant concerns about protecting critical personal identification information. These incidents are stark reminders that no system is invulnerable, and the consequences of such breaches can be far-reaching and catastrophic. The financial repercussions of cyberattacks are staggering. Industry estimates suggest that cybercrime could cost the global economy around $ 10.5 trillion annually by 2025. However, the economic cost is just one part of the problem. The reputational damage resulting from cybersecurity failures can have long-lasting effects on organizations and governments alike. Beyond financial losses and reputational damage, cybersecurity breaches can also put national security at significant risk, which could lead to devastating consequences for nations around the world. The complexity of the current cybersecurity landscape is compounded by the availability of advanced technologies to malicious actors. Generative AI (GenAI) and machine learning (ML) algorithms can now be harnessed to develop sophisticated cyber threats. These tools, once

accessible only to experts, are now available to individuals with limited technical knowledge, making it easier than ever to execute cyberattacks. This democratization of dangerous technology amplifies the risk, as more actors can easily exploit vulnerabilities. Research indicates that 63% of data breaches occur due to internal vulnerabilities. Attackers frequently exploit weak points within organizations—whether they stem from human error or inadequately secured systems. This underscores the importance of securing internal networks and implementing comprehensive cybersecurity awareness programs. Organizations must ensure that employees at all levels are aware of cybersecurity best practices and are equipped to recognize potential threats. Strong internal defenses are critical in mitigating the risk of cyberattacks. New vulnerabilities emerge as governments increasingly embrace digitalization to monitor national assets—such as water resources, disaster management systems, and tourism infrastructure. For instance, using the Internet of Things (IoT) in critical infrastructure introduces millions of potential entry points for cyberattacks. If not adequately secured, these interconnected devices could be exploited by malicious actors, making it imperative to implement robust security protocols to protect these systems. In the world of cybersecurity, we face threats as persistent, unpredictable, and elusive as Voldemort from the Harry Potter series. With his many disguises, hidden motives, and dangerous tactics, Voldemort provides an apt metaphor for the nature of cyber threats today. The way Harry Potter engaged in a continuous and strategic battle against the dark forces of Voldemort, organizations must remain vigilant in their fight against evolving cyber threats. One of Voldemort's defining characteristics is his ability to disguise, morph, and escape detection, taking on many faces throughout the series. Similarly, cyber threats can transform and disguise themselves, making it difficult to recognize them. Cyber attackers often employ techniques such as social engineering, impersonation, and identity theft to infiltrate systems. Once they enter a network, tracing and eliminating them becomes a formidable challenge. Cyber threats, like Voldemort's Horcruxes, can spread like malware, even when defeated. Malicious code often embeds itself deep within a system, making it impossible to eradicate entirely. Organizations must be aware that cyber threats can lurk within their systems, undetected, waiting for the right moment to launch an attack. Enterprises and government organizations must remain vigilant in detecting these hidden threats before they cause irreparable damage. Understanding the vulnerabilities in their ecosystems is critical to preventing breaches and protecting sensitive data. Cyber threats often leave telltale signs or early warnings of an impending attack. Identifying these markers, such as unusual network behavior or unauthorized access attempts, can give organizations the critical time to prepare for and mitigate potential damage. Early detection of these markers in the digital realm is essential for organizations to fortify their defenses and prevent a full-scale breach. Harry Potter could not defeat Voldemort alone, just as no single organization can tackle cyber threats without collaboration. Harry relied on the mentorship and wisdom of Dumbledore, who understood the complexities of Voldemort's tactics and offered guidance on how to counter them. In the same way, cybersecurity demands expertise from subject matter experts, domain experts, and industry partners. These professionals understand the landscape of cyber threats and provide the necessary advice and tools to strengthen defenses. Organizations must

establish a collaborative defense strategy, involving everyone from the IT department to executive leadership. Cybersecurity is a shared responsibility, and only through collective efforts can enterprises and government departments withstand the onslaught of cyberattacks. Organizations must employ proactive defense measures in cybersecurity, utilizing advanced tools and strategies to prevent attacks before they occur. By mastering these defenses, organizations can reduce the likelihood of a breach and protect their valuable assets. However, even the best defenses can be breached, just as Voldemort's forces ultimately attacked Hogwarts. Organizations must be prepared with a final response and recovery plan when this happens. They must also have incident response teams in place and be prepared to act swiftly. This involves isolating affected systems, tracing the source of the malware, and neutralizing the threat before it spreads further. Speed is of the essence in these situations; delays can result in devastating damage to both systems and reputations. In the end, Harry Potter's journey was shaped by his vigilance and adaptability, guided by the teachings of his mentors and his ability to learn from each battle with Voldemort. The same approach must be applied to cybersecurity. The threat landscape is constantly evolving, and so must our defenses. Vigilance is critical. Organizations cannot become complacent as cyber threats continually shift and adapt. Building a robust cybersecurity defense mechanism requires a well-thought-out strategy integrating three key building blocks: organization structure, technology, and governance. First, the organizational structure must be designed to suit the needs of the nation or entity. Different countries adopt various approaches. For India, for example, a center-led approach is ideal, with policies and frameworks established centrally, while allowing states and departments autonomy in implementation. However, a unified view across the entire ecosystem is crucial, overseen by IT leaders who ensure complete visibility and security. Second, technology must keep pace with evolving threats as attackers leverage advanced tools like AI, machine learning, and blockchain. Organizations must develop advanced threat detection and emergency response systems, collaborating with private-sector experts to enhance their cybersecurity defenses. Lastly, governance is critical, including legal frameworks and education across the ecosystem. International collaboration is essential, as cyber threats are not limited by borders, much like terrorism. A unified global stance against cybercrime and strong governance are necessary to mitigate these risks effectively. These three pillars—structure, technology, and governance—form the foundation for a comprehensive cybersecurity strategy. Cybersecurity is not just a technical issue; it's a societal one. Our digital world is interconnected, and the consequences of inaction are too significant to ignore. Governments, businesses, and individuals must work together to build a resilient, adaptive, and secure framework. Only then can we hope to turn the tide in the fight against cybercrime. TCS Helps Andhra Pradesh Government Improve School Infrastructure CGDA Launches SPARSH Platform to Ensure Timely Pension Disbursements Kerala Police Revamps Thuna Portal for Centralized Citizen Services Central Board of Indirect Taxes and Customs (CBIC), Government of India 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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HRMS powered by AI: Boosts human talent and agility

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eventually replace me? Okay, it's not that extreme, but something along those lines has popped up in our minds. And yes, we have debated it in our office canteens and living rooms. But how much is fact, and how much fiction? Here are my two cents about it. While HRMS space is very promising, it does pose multiple challenges across hire-to-retire value chain. In the fast-paced world, tackling all those is nearly impossible. Therefore, modern HRMS powered by AI is the need of the hour. Some of the use-cases are as follows: All these and many more features are integrated into one of Chroma's solutions. It is an AI-as-a-service platform that enables the management of talents and HR strategies across industries. Let's consider some of the use cases that can assist organizations to achieve triumph: By identifying high attrition risks early, HR can proactively engage with these employees to address their concerns, potentially preventing turnover. It also helps HR prioritize retention strategies and allocate resources more effectively. Streamlining promotion decisions makes it easier for HR to identify high-potential employees, ensuring fair and data-backed decisions. This feature saves time in succession planning and helps maintain employee morale by supporting a transparent promotion process. By identifying irregular claims, HR can safeguard company resources, ensure policy compliance, and promptly address issues. This feature helps HR maintain fairness in claims processing and reduces the risk of financial losses from fraudulent claims. Sentiment analysis helps HR maintain a positive and professional environment on the platform, swiftly addressing concerns or removing harmful content. It enables HR to engage with employees and address their issues constructively, fostering a supportive workplace culture. This enables HR to support employee development by providing a clear path for skill-building and career growth, which boosts engagement and retention. It also simplifies tracking progress and ensures the workforce evolves to meet business needs. This planning helps HR maintain a steady talent pipeline for key positions, reducing disruptions when roles open up. It provides visibility into high-potential employees, enables proactive development, and minimizes hiring gaps, ensuring continuity in leadership and critical duties. The future of work will be based on collaboration between humans and AI, each leveraging their abilities. Humans prioritize creativity, invention, and complex problem-solving, requiring emotional intelligence and critical thinking skills. Meanwhile, artificial intelligence will manage repetitive, time-consuming operations such as data entry, routine analysis, and scheduling. This collaboration will result in more efficient workflows, improved accuracy, and fewer errors since AI can manage vast volumes of data quickly and deliver insights for informed decision-making. The future will not be about humans vs robots but about using AI to boost human talents, resulting in more agility and better commercial outcomes. AI-based Applicant-scoring Solution for Hiring the Best Fit Candidate Things to Consider While Choosing an Effective HRMS Solution BFL leverages TCS CHROMA™ for seamless HR transformation The Metaverse: Redefining business and HR dynamics 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

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