AI Governance
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ECONOMIC
FORUM

In collaboration with Accenture

Transformation of Industries in the Age of AI

# Artificial Intelligence in Telecommunications

WHITE PAPER

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# Contents

# Reading guide

The World Economic Forum's AI Transformation of Industries initiative seeks to catalyse responsible industry transformation by exploring the strategic implications, opportunities and challenges of promoting artificial intelligence (AI)-driven innovation across business and operating models.

This white paper series explores the transformative role of artificial intelligence across industries. It provides insights through both broad analyses and in-depth explorations of industry-specific and regional deep dives. The series includes:
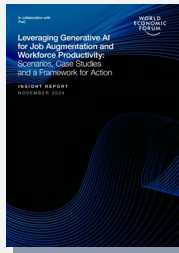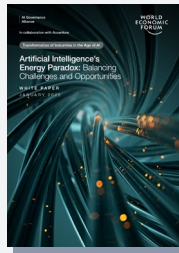
## Cross industry

### Impact on industrial ecosystems
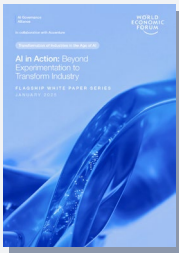
*AI in Action: Beyond Experimentation to Transform Industry*

*Leveraging Generative AI for Job Augmentation and Workforce Productivity*

*Artificial Intelligence's Energy Paradox: Balancing Challenges and Opportunities*

*Artificial Intelligence and Cybersecurity: Balancing Risks and Rewards*

## Regional specific

### Impact on regions

*Blueprint to Action: China's Path to AI-Powered Industry Transformation*

## Industry or function specific

### Impact on industries, sectors and functions

| Advanced manufacturing and supply chains | Financial services | Media, entertainment and sport | Healthcare | Transport | Telecommunications | Consumer goods, retail and agribusiness |

*Frontier Technologies in Industrial Operations: The Rise of Artificial Intelligence Agents*

*Artificial Intelligence in Financial Services*

*Artificial Intelligence in Media, Entertainment and Sport*

*The Future of AI-Enabled Health: Leading the Way*

*Intelligent Transport, Greener Future: AI as a Catalyst to Decarbonize Global Logistics*

*Artificial Intelligence in Telecommunications*

*Transforming Consumer Industries in the Age of AI*

Additional reports to be announced.

As AI continues to evolve at an unprecedented pace, each paper in this series captures a detailed snapshot of the landscape at the time of writing. Recognizing that ongoing shifts and advancements are already in motion, the aim is to continuously deepen the understanding of AI's implications and applications through collaboration with the community of World Economic Forum partners and stakeholders engaged in AI work.

Together, these papers offer a comprehensive view of AI's current development and adoption, as well as a view of its future impact potential. Each paper can be read standalone or alongside the others, with common themes emerging across industries.

# Foreword

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As a tech-native industry, the telecommunications sector has actively implemented machine learning (ML) and adaptive and predictive artificial intelligence (AI) for over a decade, especially in network operations. Today, the combination of traditional AI and generative AI (genAI) offers the industry a unique opportunity to rethink and reinvent traditional business and operating models. An inflection point is becoming apparent.

Although there are regional differences, AI is omnipresent in telecommunications companies (telcos) across the world, offering opportunities to improve topline growth, build operational efficiencies and reduce costs, and increase the return on investment (ROI) on the large capital expenditure (CapEx) investments made by telcos. However, while the technology presents significant opportunities, many telcos are still struggling to implement use cases (particularly those involving genAI) at scale due to challenges around data and legacy infrastructure, talent and responsible adoption.

The World Economic Forum has partnered with Accenture to develop this report and help industry better understand the current state of play across the sector and opportunities to accelerate responsible adoption across the telco value chain. We have worked closely with a community of telecoms across regions, original equipment manufacturers (OEMs) and other ecosystem partners, industry associations, and academia to gather insights and real-life experiences, developing a common understanding of the emerging opportunities, challenges and key enablers.

The findings show a variety of AI use cases across different functions within telcos, of which 10 are characterized as top priorities with both a high perceived readiness and impact. Another set of use cases is deemed to be implementable in the next 12-18 months and beyond. This reflects that AI is real for the telecom industry, with a clear promise that it will be even more transformational in the future.

With the technology and its adoption evolving rapidly, this initiative will continue to engage stakeholders across the telecom value chain, uncovering new insights, identifying emerging opportunities and challenges as they unfold, and offering a platform for knowledge exchange to drive collective action for responsible adoption. The development of robust governance and multistakeholder partnerships is key to facilitating a responsible adoption and ensuring a sustainable future for the industry.

# Executive summary

## AI is poised to transform the telecommunications sector, unlocking business opportunities, enhancing operational efficiency and delivering a truly customer-centric experience.

This white paper explores artificial intelligence's (AI) transformative potential in the telecommunications industry, addressing sector-specific opportunities and challenges. It provides actionable insights to help industry leaders navigate this period of change.

The sector faces a challenging landscape, with service commoditization leading to global revenue stagnation, a lack of core service differentiation and a requirement to diversify to drive growth. Technological advancements require that communication service providers (CSPs) manage complex multi-vendor network architectures and defend against sophisticated, AI-powered cybersecurity threats. The resulting operational complexity has already surpassed what traditional, manual processes can support.

As the industry reaches an inflection point, AI will play a critical role in its reinvention. Following extensive experience with traditional AI and a period of experimentation with genAI, there is an industry-wide focus on scaling use cases to achieve four key imperatives:

– A new model of telecommunications is emerging, whereby AI-enabled automation of network management and technology is **reducing cost-to-serve**. Worker efficiencies will be improved through the democratization of data and knowledge sharing tools.

– GenAI capabilities are enabling sales and marketing personalization to **drive business growth**, with opportunities to diversify revenue streams through AI infrastructure provision and AI-as-a-service (AIaaS) offerings.

– Natural language capabilities are **transforming customer service**, unlocking innovations in digital service, including AI-powered retail assistants and natural language chatbots. A clear pathway is emerging towards a new unassisted, proactive and cross-channel service model in the future.

– In response to a growing cybersecurity threat, CSPs are using AI to ensure **secure and reliable operations** by automatically identifying and patching vulnerabilities, detecting and responding to incidents and preventing fraud.

To realize this potential and prevent isolated implementations, CSPs require a cohesive strategy for enterprise-wide transformation, including a clear value-based prioritization model, appropriate data foundations and technical architecture, workforce capabilities and responsible AI principles. Continued re-evaluation of these transformation pillars will be essential as AI continues to evolve.

Collaboration opportunities will be crucial for CSPs, including partnerships within the industry itself, with technology infrastructure providers, application developers, those driving enterprise-wide transformations, and with the public sector through public-private partnerships (PPPs).

AI is an essential enabler within telecommunications, with the potential to drive efficiency, improve customer experience and deliver against emerging growth opportunities while remaining secure in the face of growing cybersecurity threats. To maximize the benefit, CSPs need to develop an end-to-end strategy across the organization, including data and technology architecture, organizational model and partnerships with a clear value calculation to drive decision-making.

## 1 Context and industry imperatives

The telecommunications sector must actively pursue innovative technologies and business models to revitalize revenue growth and improve profitability.

### 1.1 Context

**66%**
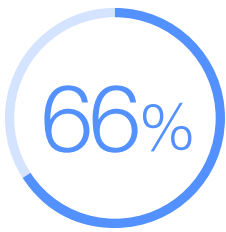
of telco AI professionals planned to increase their AI budgets in 2024.

The **telecommunications industry** forms the backbone of global communications, with data consumption expected to increase from 3.4 million petabytes (PB) in 2022 to 9.7 million by 2027.[1]

In 2024, **industry revenues** reached $1.6 trillion,[2] driven by integrated communication service providers (CSPs) that manage both network operations and customer-facing services, alongside an increasing number of specialized companies – network companies (NetCos) focused on network operations and service companies (ServCos) focused on customer-facing services across fixed and mobile providers.

The commoditization of communication services has led to **stagnating global revenues** (with some regional exceptions), with a 0.3% compound annual growth rate (CAGR) forecasted from 2024 to 2027.[3] While cost efficiency initiatives have helped to maintain consistent **earnings before interest, taxes, depreciation and amortization (EBITDA) margins** (32% in 2019 vs. 32.5% in 2024),[4] the industry is struggling to improve margins due to persistent revenue headwinds and intense competition. Meanwhile, **heavy infrastructure investments**, especially in 5G and fibre, have limited investment capacity in new growth initiatives and contributed to an increasing debt-to-equity ratio (13.5% up since 2019 to reach 147.6% in 2024).[5] Consequently, CSP **market capitalizations** have only grown by 7% since 2018 versus digital platforms' 230% and S&P 500's 172%.[6]

To reverse these trends and return to growth, the industry is focused on freeing up resources to reinvest in new technologies and business models. AI is emerging as a critical enabler to address these challenges and unlock new growth.

AI is not new to telecommunications. Traditional, predictive AI and machine learning (ML) – collectively referred to as "traditional AI" in this report – have already laid the foundation for efficiency improvements and automation. The emergence of genAI is amplifying these capabilities and has sparked renewed excitement, with 66% of telco AI professionals across CSPs, hardware or software providers having planned to increase their AI budgets in 2024 and 90%[7] of them assessing, piloting or using AI in production.

CSPs are also using AI to manage rapidly escalating operational complexity – such as managing multi-vendor architectures, countering AI-driven cyberattacks and delivering personalized self-service.

As the industry faces a pivotal inflection point, telecommunications companies must prioritize a set of strategic imperatives. These imperatives will not only address immediate pain points like operational complexity and revenue stagnation but also set the stage for long-term resilience and growth.

# Industry imperatives

**💬 Traditional AI and genAI can create cost effective network designs, automate multi-vendor component integration and continuously monitor performance to detect anomalies.**

The industry must focus on four key imperatives: reducing costs, driving growth, differentiating customer experience and ensuring secure, reliable operations.

## Reduce cost to serve

Despite efforts to bring them down, CSPs' operational costs remain stubbornly high, at 65-70% of revenue; network operations alone will consume 50% of total operating expenses (OpEx) by 2027.[8]

Traditional AI has long contributed to cost reduction and efficiency, such as through predictive maintenance, with nearly two-thirds of AI professionals across CSPs and hardware or software providers reporting cost savings from AI use cases.[9] GenAI builds on this by processing unstructured inputs and generating content, unlocking cost savings in two ways:

Firstly, genAI enhances efficiencies through data democratization and automation of repetitive, structured tasks, such as network planning applications or generating customer emails. Natural language capabilities enable the enterprise-wide sharing of data and knowledge to improve decision-making, efficiency and outcomes.

Secondly, CSPs can enable increased process automation across IT and network management, helping address persistent challenges and drive efficiencies.

Across information technology (IT), CSPs report a high technical debt, which consumed 56% of IT spend in 2023.[10] This debt results from piecemeal technology adoption, leading to fragmented systems, siloed data and legacy architectures that complicate modernization efforts. Only 7% of CSPs report being "fully satisfied" with recent modernization attempts.[11] However, genAI's ability to ingest unstructured data and produce blueprints, test scripts and standardized code components enables the automation of end-to-end software and data delivery life cycles. This comprehensive approach to reducing technical debt improves the speed, consistency and quality of modernization efforts while embedding security throughout.

The transition of network infrastructure from legacy monolithic architecture to disaggregated hardware and software layers allows AI to play a bigger role in network automation. For example, together, traditional AI and genAI can create cost-effective network designs, automate multi-vendor component integration and continuously monitor performance to detect anomalies. They can also perform real-time root cause analysis within operations and ensure security configurations meet baseline requirements. When faults are detected, AI can propose solutions or autonomously adjust traffic routes to minimize downtime, enhancing service quality and continually progressing towards fully automated network operations.

A human-on-the-loop[12] approach is vital, ensuring efficiency and reliability while mitigating risks such as **configuration drift** (whereby standard configurations deviate over time) and **model hallucinations** (the creation of nonsensical or inaccurate outputs) through consistent human oversight.

## Drive business growth

As CSP revenues are squeezed and enterprise value declines, the industry is exploring new growth opportunities. While only 27% of AI professionals across CSPs, hardware and software providers cite "meeting revenue targets" as a primary goal for AI use, 67% have reported revenue uplift in specific business areas attributable to AI.[13]

In business-to-consumer (B2C), AI is reshaping customer acquisition and retention strategies. GenAI enables the creation of highly personalized marketing campaigns and customer journeys powered by predictive models that anticipate individual behaviours. These capabilities allow CSPs to identify purchase propensity or churn risk, tailor offerings through granular customer segmentation, optimize bundling of traditional communication and adjacent digital products, and price them more strategically.

In business-to-business (B2B), CSPs are increasingly moving up the value chain by capitalizing on their infrastructure provision and AI capability development. As existing infrastructure providers, CSPs can employ their data centres to offer innovative services across the full spectrum of the cloud, edge compute and connectivity. This includes hosting AI infrastructure with graphics processing units (GPUs) and inferencing capabilities to meet local enterprises' needs and providing ICT (information and communications technology) services and off-the-shelf edge industry solutions in partnership with ecosystem players. This aligns with the growth in demand for AI computing power and cloud migration, which have driven a 35% growth in data centre spending, which stood at $318 billion in 2024 and is forecast to grow another 15.5% ($49 billion) in 2025 (versus 4.4% for communications).[14]

The digital infrastructure offering can position CSPs to support at least one of the key sovereign AI solution pillars,[15] with some of the CSPs particularly well-positioned to do so, having developed their own sovereign large language models (LLMs).
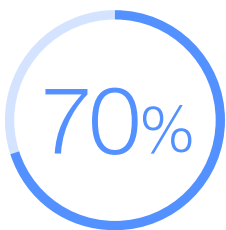
**70%**

of telecommunications customers are frustrated by a lack of consistent experience across channels.

Traditional AI and genAI are also powerful enablers of telecommunications companies (telcos) transitioning into technology companies (techcos) – agile, technology-centric digital service providers that go beyond connectivity to offer advanced, customizable digital solutions. Supported by engineering and technology insourcing, techcos can industrialize and scale new digital business models. This shift requires rethinking the business and operating model and technology stack. Telcos making this transition report up to 31% revenue diversification,[16] showcasing the potential of this strategic evolution. AI is pivotal in this transition, empowering telcos to predict and respond to user needs dynamically and precisely. For example, B2B clients can configure a suite of digital services like chatbots or security solutions, with AI algorithms analysing usage patterns and past data to recommend the optimal service mix. For B2C consumers, genAI ensures seamless experiences by optimizing network services such as 5G quality of service (QoS) speed and latency for streaming or interactive applications. This real-time customization enhances satisfaction and unlocks new revenue streams, cementing the techcos' role as a proactive, versatile digital service provider.

CSPs are also unlocking growth by offering internally developed AI-as-a-service (AIaaS) models for small- and medium-sized businesses (SMBs) and mid-market customers. For example, by packaging their AI capabilities into accessible solutions, CSPs provide tools for automating customer service or enabling sales strategies. This empowers resource-constrained SMBs to adopt advanced technologies cost-effectively, demonstrating how AI can drive growth across the entire spectrum of telecommunication customers.

## Differentiate customer experience

Despite widespread commoditization, only 34% of telecommunications customers feel satisfied with their service, and 70% are frustrated by a lack of consistent experience across channels. Only one in three customers stay with their service provider for over five years.[17] A total of 48% of CSP, hardware and software industry AI professionals identify customer experience improvements as a primary goal of AI implementation, helping them differentiate their services and halt revenue decline.[18]

Traditional AI is already enhancing customer interactions by analysing user data and recommending "next best actions", such as matching customers with suitable offerings, guiding call centre agents or deploying simple language chatbots.

However, genAI is transforming these capabilities with advanced conversational tools, such as natural language chatbots and AI-powered retail assistants, to improve customer experience.

**" AI can identify and patch vulnerabilities and analyse vast operational datasets in real time to detect security incidents and prevent fraud.**

These agents surpass static, decision-tree chatbots by offering human-like, context-aware interactions that continuously learn and adapt based on real-time customer behaviour and organizational data. They provide seamless, personalized interactions by adapting to changing customer needs, using signals and integrating both structured and unstructured real-time data from all customer touch points. As a result, CSPs are significantly increasing adoption rates to the extent that they are now among the top three channels preferred by customers.[19]

Technologically, this marks a shift from traditional, fixed ML models trained on historical data to sophisticated LLMs pre-trained on customer interactions. These models are further enriched with broader market and organizational context, enhancing the intelligence and adaptability of AI-powered customer engagement.

GenAI also improves the efficiency and service standards of human-assisted channels by harnessing and democratizing knowledge. This empowers workers to become "super agents" capable of cross-functional support. This reduces call handling times, lowers service costs and unlocks opportunities for incremental sales.

As intelligent automation advances and data foundations evolve to integrate customer data across sales, marketing and service, the traditional contact centre – seen as a cost centre handling transactional interactions – can be reimagined. It can become a unified, proactive and predictive service hub that integrates all channels, enhancing customer loyalty, driving in-life sales and supporting business growth.

Using its natural-language capabilities, genAI can enable always-on, real-time digital companions that provide 24/7 service, referring complex issues to human agents when required.

## Secure and reliable operations

The evolving security landscape requires telcos to adapt to the new opportunities and threats that AI brings. AI's reliance on extensive datasets in large-scale compute and storage environments creates a complex and attractive attack surface, making defence increasingly challenging.

Open interface networks and traditional IT technologies such as cloud, hypertext transfer protocol (HTTP) and application programming interfaces (APIs) expose network infrastructure to a broader array of threats,[20] while legacy components, often retained due to capital constraints, amplify vulnerabilities. Telcos handle sensitive data from users, such as location information and communication content, which are prime targets for state-sponsored attackers and cybercriminals. Moreover, genAI is being weaponized to deploy malicious code at scale, enabling faster and more extensive damage.

Managing these risks requires advanced AI capabilities. AI can identify and patch vulnerabilities and analyse vast operational datasets in real time to detect security incidents and prevent fraud. By automating heavy-lift tasks, AI enables security teams to focus on tasks that engage their human security skills, creativity and teamwork.

Key AI techniques for securing operations include network planning, adversarial testing, model evaluation, pattern matching and user behaviour analysis.

# (2) Industry adoption

## The next 12-18 months will see the significant upscaling of AI-driven solutions across all functions of the telecommunications industry.

As the telecommunications industry grapples with these challenges, the adoption of AI is rapidly accelerating, but with varying degrees of maturity across the sector. While most CSPs have built on their experience with traditional AI to explore the potential of genAI, in practice, use cases are in the proof-of-concept stage[21] due to siloed data, legacy architectures and liability risks.

This section examines both the current landscape of adoption and future possibilities. This exploration highlights key use cases (not an exhaustive list), which can serve as inspiration for CSPs to deliver against the four industry imperatives discussed in detail in the last section.

| | |
|---|---|
| (1) | Reduce cost to serve |
| (2) | Drive business growth |
| (3) | Differentiate customer experience |
| (4) | Secure and reliable operations |

Cross-industry "enterprise" use cases across functions such as finance, legal, human resources (HR), procurement and operations are acknowledged but not described in detail since they are not industry-specific.

## 2.1 | Present scenario

An example of high-value use cases across telecommunications functions, grouped by the primary imperative they support

Use cases mapped across business functions

| Industry imperatives | Sales and marketing | Product and service | Customer service and care | Network | Technology and platform | Enterprise |
|---|---|---|---|---|---|---|
| **Reduce cost to serve** | | | Virtual assistant — Assisted customer care with sentiment analysis — Advanced troubleshooting — Transcript analysis | Design automation — Digital twin planning — Deployment quality assurance (QA) assistant — Network engineering assistant — Radio access network (RAN) energy saving assistant — Network decommissioning | Technology delivery life cycle — Data delivery life cycle | Back-office automation (out of scope) |
| **Drive business growth** | Sales genAI assistant — B2B lead enrichment | AI enabled products and services — Customized service packages — Real-time service configuration — Customer segmentation | Sales through service | | | |
| **Differentiate customer experience** | Hyper-personalized content and customer journeys | | Optimizing service design and delivery | Network operation centre (NOC) genAI assistant — Field tech assistant | | |
| **Secure and reliable operations** | | | | Security operations centre (SOC) assistant | | |

Vulnerability management          Incident detection, analysis and response          Fraud prevention

## Sales and marketing

### Value: drive business growth, differentiate customer experience

Marketeers strive to reach the right person with the right message at the right time, but limitations around content creation and the diversification of digital channels have, so far, made this impossible. GenAI addresses these challenges by providing the required channel and content sophistication.

While traditional AI-driven digital advertising solutions already perform advanced customer segmentation in B2C channels, combining traditional AI and genAI allows for **hyper-personalized content and customer journeys**. These tools refine customer segmentation at a low cost, tailoring messages to individual needs and maximizing the impact of every interaction.

Traditional AI and genAI enhance **B2B lead enrichment** by analysing prospect attributes to prioritize leads and recommend the most suitable solutions or services, improving efficiency across B2B sales teams.

In direct sales, **genAI assistants** can support sales agents with insights via personalized sales scripts and intelligent recommendations on the products and pricing to better engage the customer.

These use cases rely on historic customer data, which can perpetuate biases or prejudices across sales actions or recommendations. To mitigate this, businesses must introduce close data monitoring, extensive testing and guardrails to protect consumers.

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**BOX 1** | **Driving sales with Telefonica's Next Best Action AI Brain**

Telefonica's Next Best Action AI Brain uses an in-house Kernel platform to revolutionize customer interactions with precise, contextually relevant recommendations. It analyses both contextual and non-contextual customer data, integrating behavioural patterns and preferences to anticipate needs. This allows for hyper-personalization of product, service or action offers, boosting conversions and customer satisfaction. Initial implementations have shown sales increases of nearly 20% and conversion rates of around 30%. The result is an enhanced customer experience, increased loyalty, and superior ROI in commercial and marketing efforts.

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## Product and services

### Value: drive business growth, differentiate customer experience

The shift from telco to techco hinges on the ability to expand a service offering beyond connectivity to offer personalized portfolios and configure network QoS to meet expectations.

For connectivity-based services, **real-time service configuration** powered by genAI can dynamically adjust network settings or service configurations to enhance the customer experience through a unified central interface. For example, it can adjust bandwidth allocations in real time to meet specific needs, such as streaming or gaming services.

Traditional and generative AI can help SMB and enterprise clients curate **customized service packages** aligned with their business goals, adapting these offerings to the company's evolving needs.

AI can support precise predictive **customer segmentation** models, enabling real-time customer management and product development based on complex data sources. Once segmentation personas are identified, AI can refine pricing decisions through elasticity models and propose need-based service bundles. These outcomes must be tested to reduce bias and discrimination.

As CSPs build their own AI assets and capabilities, they can also capitalize on existing trusted customer relationships and the convenience of a unified bill to offer white-labelled versions of in-house AI services, such as chatbots or security solutions. These **AI-enabled products and services** can be bundled into a comprehensive offering alongside communications products where appropriate.

Within B2B, extensive opportunities exist for CSPs to provide AI-related offerings across infrastructure, AI capabilities and end-industry solutions. These are detailed in Section 2.2.

> ❝ AI can support precise predictive customer segmentation models, enabling real-time customer management and product development.

| **Intent-based operations to support real-time service configuration**

A global telecommunications technology leader implemented "intent-based operations" to provide service assurance for Digital Nasional Berhad (DNB), a Malaysian 5G wholesale network, enabling the delivery of new 5G services for six mobile network operators (MNOs) with distinct performance requirements. After understanding the intent of the service, the system uses predictive AI, machine reasoning and complex automation to provide the operational speed and agility needed to support 18 diverse service level agreements (SLAs) by identifying potential breaches in advance on one service and taking corrective action automatically. This is done without compromising the other services and improving SLA compliance from 70% to 100%.

## Customer services

**Value: Reduce cost to serve, differentiate customer experience, drive business growth**

For unassisted service, genAI powers **virtual assistants** to deliver human-like interactions and **supports advanced troubleshooting** by using vendor and network data to provide step-by-step guidance to customers and staff in resolving technical problems.

In assisted calls, **assisted customer care with sentiment analysis** combines predictive capabilities with genAI to generate real-time scripts for service agents based on past interactions and live customer sentiment. To ensure these scripts are ethical and effective, extensive testing is required to prevent bias, discrimination or toxicity, supported by clear guardrails.

Live **transcript analysis** helps service agents monitor customer service teams across a range of performance metrics, such as issue resolution rates and upsell attempts. Root cause analysis of transcripts can identify underlying customer service issues and automatically initiate actions to resolve them.

GenAI can reduce administrative tasks for customer service agents by **optimizing service design and delivery**. For instance, it can generate call summaries, automated emails and service tickets, improving productivity and reducing call handling time.

For longer-term sales and service integration, **sales through service** uses customer data to provide service agents with predictive insights on churn risk and product relevance. It suggests "next-best actions" like identifying retention, upsell or cross-sell opportunities during service calls.

| **Intelligent service automation transforms customer engagement**

A European telco revolutionized its customer engagement model by deploying an AI-powered service automation platform. The system uses ML and predictive analytics to understand customer behaviour patterns and automate personalized responses across digital channels. This enables proactive, context-aware customer interactions that anticipate and address needs before they become issues. The platform achieved a 40% reduction in service resolution time, a 35% improvement in customer effort scores and a 28% increase in digital channel adoption, showcasing how AI can drive both operational efficiency and customer satisfaction.
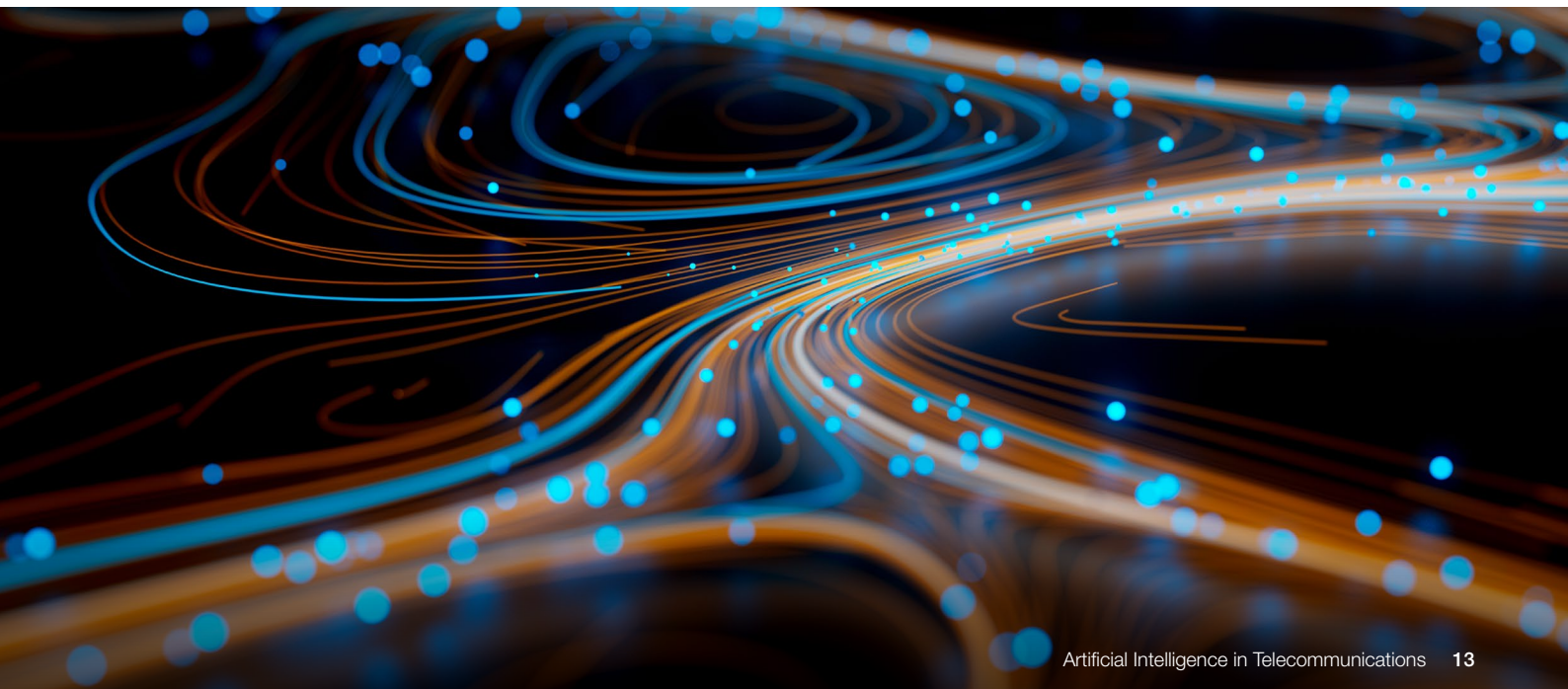
# Network and service assurance

### Value: Reduce cost to serve, differentiate customer experience

AI and genAI solutions enable networks to be smarter, more reliable and environmentally sustainable while reducing operational burdens. Autonomous networks powered by AI and genAI can transform every step of network management, spanning design, deployment, engineering, orchestration and operations across public, private 5G and programmable networks.

**Design automation** optimizes network designs to maximize coverage while minimizing capital expenditure (CapEx), supporting smarter decision-making. GenAI enhances this process by automating documentation and speeding up planning approvals. **Digital twin planning** creates virtual network models, enabling data-driven decision-making and efficient resource allocation.

AI tools like **deployment quality assurance (QA) assistants** drive efficiency in deployment. The assistant provides real-time quality assessments to enhance quality control, streamline review processes, reduce costs and deliver an improved customer experience.

In network engineering and orchestration, AI-powered automation enables dynamic, real-time management of multi-vendor, multi-domain networks. By automating integration, reconciliation and standardization of network data, AI accelerates vendor onboarding, improves compatibility and minimizes manual interventions.

GenAI solutions like the **network engineering assistant** use a chatbot interface to help engineers monitor network infrastructure by analysing real-time network performance data to provide insights and recommendations that drive network optimization, performance and user experience.

Once live, intelligent network operations shift from reactive to proactive management through AI-driven operations centres that predict potential faults before they escalate. By autonomously initiating resolutions, these centres minimize downtime and enhance service reliability.

An AI-powered **network operations centre (NOC) genAI assistant** automates key tasks such as incident troubleshooting and change management for NOC engineers, improving efficiency and reducing operational costs. This use case accelerates network operations, enabling reliable, scalable, cost-effective management and advancing towards fully autonomous network operations.

In **network decommissioning**, genAI simulates scenarios to predict network impacts, optimize CapEx and redistribute resources optimally. It automates technical data reconciliation, updates technical records and generates scripts to streamline the shutdown of outdated equipment and setup of new infrastructure.

Throughout these processes, a genAI-powered **field tech assistant** can provide technical assistants on the field with real-time installation and troubleshooting advice.

AI also drives sustainability by reducing network energy costs, 87% of which is consumed in the radio access network (RAN)[22] in mobile networks. The **RAN energy savings assistant** analyses network data to identify energy-saving opportunities. Combined with 3D digital twins, these insights enable network engineers to simulate and implement energy-saving strategies that reduce energy costs by up to 15%[23] without compromising performance.

## BOX 4 | Identifying "sleeping cells"

Rakuten Mobile tackled the industry-wide issue of "sleeping cells" (malfunctioning cells which appear operational on management systems) by deploying an AI-powered detection algorithm. This system analyses network key performance indicator (KPI) data in near real time, using a hybrid dynamic global auto-encoder to identify anomalies. The initiative reduced detection latency by over 80% and improved productivity by more than 60%. By shifting from reactive troubleshooting to proactive detection, Rakuten Mobile achieved greater network reliability and cost savings, underscoring the critical role AI plays in the evolution of modern telecom networks.

## BOX 5 | Telefonica's AI-powered digital twin

Telefónica Germany's AI-powered digital twin solution enhances transport and IT infrastructure management. It creates a dynamic virtual replica of the physical transport network, allowing precise simulation, prediction and optimization of operations. By integrating advanced AI and ML models, it analyses real-time and historical data to identify performance bottlenecks, forecast demand and streamline maintenance. This innovation has reduced troubleshooting times by up to 90%, improved reliability and positioned Telefónica as a leader in sustainable telecom practices.

# Platform and technology

### Value: Reduce cost to serve

Legacy architecture and siloed data are constraining CSPs, with 66% of executives concerned about their technical debt and 84% fearing missed growth opportunities without IT transformation.[24] GenAI can accelerate modernization and reduce associated costs to unlock agility and enable larger business value generation.

The challenges of disconnected implementations, vendor dependencies and complex custom solutions amplify transformation difficulties, but genAI can address these by acting as the "tech for tech" lever. It can reverse-engineer business logic, identify gaps between industry standards and current implementations, establish architecture guardrails, create detailed design documents, generate code in multiple technology constructs, generate and execute test scenarios, and automate code promotion – streamlining the entire **technology delivery life cycle**.

GenAI can also be applied to the **data delivery life cycle** to enable automated data management, retention and governance.

GenAI can orchestrate processes and data silos without requiring expensive consolidation efforts, reducing technical team workloads, costs and timelines and enabling the standardized, fit-for-purpose adaptive new digital core that is inherently less prone to technical debt accumulation.

# Secure and reliable operations

Telecommunications firms, as providers of critical infrastructure, face increasing regulatory obligations to protect network infrastructure, customer data, security and privacy.[25] AI and ML enable data analysis across telcos to identify patterns signalling a security risk.

Malicious actors can employ AI to identify and exploit vulnerabilities. AI-powered **vulnerability management** helps telcos identify and prioritize network exposure to these threats, enabling timely remediation through patching, re-architecting or other measures. AI can automate responses to known vulnerabilities, such as applying compensating controls (for example, network segmentation) until patches are implemented.

Telco services rely heavily on infrastructure vendors for closed software packages with new features and patches, which may harbour vulnerabilities or be compromised in the supply chain. AI supports vulnerability assessment for these third-party packages, enhancing software security.

In the event of a breach, AI can execute automated **incident detection, analysis and response**, minimizing the infrastructure and service impact while preventing lateral movements or privilege escalation.

Within **network security**, AI is critical for real-time threat detection, traffic pattern analysis and automated incident response. An AI-driven **security operations centre (SOC) assistant** identifies anomalies, mitigates risks and safeguards sensitive data, reducing manual effort, strengthening security posture and generating comprehensive incident reports. Autonomous networks with enhanced threat detection and automated security measures provide a robust defence against evolving cyberthreats.

AI also supports **fraud prevention** by analysing customer behaviour in real time and flagging suspicious activities, including blocking spam and scam communications. However, CSPs must address concerns around bias, discrimination, liability and compliance when deploying AI-driven solutions.

BOX 6 | **Secure vendor software updates**

A global IT solutions provider supported a market-leading CSP in launching a genAI-assisted telco cloud security management solution that simplifies vendor software upgrades in the telco cloud, ensuring infrastructure security. By retrieving and analysing official documentation, the genAI assistant creates and validates upgrade plans, reducing analysis time from two days to four minutes. This approach minimizes human error, prevents security breaches and optimizes resource allocation, achieving a 91% recommendation success rate.

BOX 7 | **Anti-spam network**

Bharti Airtel launched India's first anti-spam network. The AI-powered network uses advanced algorithms to provide real-time spam protection at no cost to the customers. Processing a staggering 2.5 billion calls and 1.5 billion messages daily, it successfully identified close to 1 million spammers every day within the first two months. The dual-layered protection system integrates network and IT layers for comprehensive coverage. By analysing caller usage patterns, the AI algorithm flags suspected spam communications, offering immediate protection without user action. This approach ensures enhanced security and privacy for all customers.

FIGURE 2 | Value vs. readiness



**Value** (cost reduction, revenue uplift, customer experience, security)

High

- Digital twin planning
- SOC assistant
- Incident detection, analysis and response
- Vulnerability management
- Network decommissioning
- Design automation
- Virtual assistant (voicebot)
- Real-time service configuration
- Sales through service
- RAN energy savings assistant
- Customized service packages
- NOC genAI assistant
- Field tech assistant
- Technology delivery life cycle
- Fraud prevention
- Virtual assistant (chatbot)
- Deployment QA assistant
- Customer segmentation
- Transcript analysis
- Data delivery life cycle
- Advanced troubleshooting
- Network engineering assistant
- Assisted customer care with sentiment analysis
- Sales genAI assistant
- Hyper-personalized content and customer journeys
- Optimizing service design and delivery
- B2B lead enrichment

Low

Low — **Readiness** (technology, data, compliance and people) — High

- Sales and marketing
- Customer service
- Tech and platform
- Product and service
- Network
- Security and operations

**Note:** The telecommunications industry is expected to be "ready" for these use cases within 18 months, with 10 identified as current top priorities. Due to the range of products and services that AI can enable, "AI-enabled products and services" are not included.

## 2.2 | Emerging and future scenarios

As AI capabilities advance in core enablers, automation and agentic architecture, CSPs can unlock new, transformative opportunities.

**AI-enhanced data monetization**

With advancements in computing, including scaled GPU-enabled processing, CSPs can monetize the vast data they generate. Open API technology simplifies data sharing with third parties, enabling them to sell **AI-enhanced data monetization** to B2B customers, with offerings across AdTech, insights marketplace and analytics-as-a-service.

**AdTech** enhances customer profiling, segmentation, propensity to buy and pricing elasticity models to enable targeted advertising. Advertisers can use AI-driven insights to engage the right audience at the right time, boosting marketing performance.

**Insights marketplace** provides actionable views on market trends using customer profiling and market assessments. AI-driven capabilities such

as location intelligence, share-of-wallet predictions or market share simulations offer predictive insights.

**Analytics-as-a-service** allows enterprises and SMBs to access anonymized, aggregated customer data for custom analysis and model development, combining telco data with third-party inputs.

Data monetization must comply with regional and local regulations and align with responsible AI principles. CSPs must ensure that personal data is used responsibly, with robust measures to safeguard privacy, mitigate liability and maintain compliance.

**Sovereign AI**

The rise of AI brings significant societal and economic value but also introduces cybersecurity risks, particularly for sensitive data.[26] The definition of "sensitive data" and the ways in which AI governance and regulations dictate its treatment varies by geography.

In response to concerns over privacy, national security and economic development, some countries are advancing **sovereign AI** strategies to retain control over data and technologies, ensuring that AI development, deployment and governance align with local regulations. This requires nation-states to develop their AI workforce, build local AI infrastructure and govern how sovereign data is used within nationally controlled language models. It also impacts decisions around data centre locations, cross-border data flows and the selection of appropriate training data.

In an emerging opportunity, CSPs have positioned themselves as sovereign AI providers by developing their infrastructure and capabilities across the cloud, edge compute and connectivity, hosting sovereign LLMs within their data centres or on sovereign cloud solutions.

As trusted core infrastructure providers, CSPs are well-positioned to move beyond traditional last-mile connectivity by extending their infrastructure offerings across the cloud, edge compute and connectivity. They can deploy their data centres and ecosystem partnerships to host GPUs and offer **AI infrastructure-as-a-service**[27] to enterprises.

CSPs can enhance this foundational infrastructure layer with capabilities like data management, business logic, modelling tools and agentic frameworks to deliver complete **AIaaS** vertical solutions for specific industry use cases such as video surveillance or warehouse management.

In the strategic transition towards AI service provision, CSPs must operate as AI businesses by understanding how end customers use AI to solve real-world problems and, in turn, the data and resources the CSP can provide in a secure and responsible way to support customer objectives, as trusted providers.

While some global CSPs have made progress in providing sovereign AI, for most, this remains a future goal requiring significant investment and strategic focus. There's a risk that smaller nations may not be able to support bespoke implementations, highlighting the importance of international and multistakeholder collaboration to create frameworks that protect national interests while maintaining responsible innovation and technology development.

## BOX 8 | AI-as-a-service offering from e&

e&'s AIaaS provides B2B customers end-to-end AI capabilities, in a managed environment. It provides scalable, pre-built solutions that can be customized, enabling fast deployment and optimized data handling. AIaaS minimizes integration challenges with existing systems, allowing businesses to focus on core activities while using AI for operational and strategic advantage. This service accelerates AI adoption, offering a cost-effective pathway to data-driven insights, operational precision and scalable growth. Impacts include rapid deployment, access to local AI experts and continuous capability building.

### Personal concierge across all channels

The **personal concierge** concept represents a strategic shift in customer marketing, sales and service reinvention, transforming from a cost-focused reactive service model to a proactive, predictive, customer-centric value centre that enhances customer loyalty.

Rather than simply responding to customer inquiries, the personal concierge employs AI's predictive power to anticipate customer needs, creating a smoother, more connected service experience. Through intelligent automation and integrated data across the organization's ecosystem, genAI enables hyper-personalized content and meaningful interactions that build loyalty and drive growth.

As technology advances, the personal concierge can further use genAI tools to deliver a data-driven, highly interactive, personalized self-service experience. Digital solutions will span automated support channels to human assistance for complex needs. This shift will not only enhance efficiency and first-contact resolution metrics but also increase customer profitability and lifetime value, aligning service delivery with long-term business growth objectives.

## BOX 9 | The first AI-powered autonomous telecom store

The e& Autonomous Store Experience (EASE) is the world's first autonomous telecom store, powered by AI and facial recognition technology for seamless entry and self-checkout. The fully automated store uses smart gates, AI-powered cameras, robotics and smart shelves to create a frictionless shopping experience. Customers can enter with facial recognition or the e& app, shop from an extensive range of e& products and services, and simply walk out with automatic self-checkout. This innovation enhances customer convenience, operational efficiency and overall customer experience.

### Truly autonomous networks and operations

Based on TM Forum's **Open Digital Architecture**,[28] CSPs have significantly transformed to embrace open architectures, including disaggregation of hardware and software layers to enable virtual networks that can be managed, programmed and updated remotely. This reduces reliance on proprietary hardware while opening opportunities for advanced network automation powered by genAI.

Autonomous networks deliver a "Zero X" experience – zero wait, zero touch, zero trouble – through AI-enabled self-management, optimization, configuration and security.[29] TM Forum's AI Maturity Model identifies six levels (0-5) of network automation,[30] with the highest level offering "closed-loop automation capabilities across multiple services, domains (including partner domains) and the entire life cycle via cognitive self-adaptation".[31] This enables use cases such as proactive fault identification, resolution and management and zero-touch operations. The potential value of Zero X has been estimated as $794 million annually for an average CSP.[32]

China Mobile exemplifies this ambition, aiming for "highly autonomous network" (level 4) automation by 2025,[33] where manual intervention is reserved for strategic decisions and process oversight.

Fully automated networks require an open architecture across vendors, including network management interfaces that are currently specific to original equipment manufacturers (OEMs). Removing these barriers will enable CSPs to harness AI's full potential, driving unprecedented levels of automation, efficiency and customer experience across the telecom landscape.

### Autonomous tech stack reinvention

Traditional IT management and programming methods rely on centralized points (such as an application) to access and process data, using coded business logic and producing consistent outcomes for given inputs. However, technology has now advanced to a point where it can enable non-deterministic solutions that disaggregate the model (data) from the controller (decision-making capabilities), eliminating the need for a single interface to connect the two.

This transformation requires agentic AI architecture, including foundation agent orchestration, continuous training and feedback. These components can build an intelligence wrapper that acts as a dynamic control plane capable of understanding context, making decisions and improving over time. However, guardrails are required for responsible use.

The implications are transformational. The rise of an AI agent-operated "super platform" is anticipated, supplanting the current coded "super app". This will free businesses from constantly managing technical debt and allow them to focus on experimentation and innovation.

Future reference architectures will depend on decisions around the location of the control plane for specific scenarios – whether it should be closer to data sources at the edge, or to cognitive, connected and creative decision engines.

# ③ Challenges and enablers

## A successful AI strategy hinges on legacy system modernization, supporting and empowering workers, and ensuring a trustworthy deployment.

Faced with these opportunities, organizations require a cohesive strategy, with senior buy-in and long-term investment plans. Fundamentally, CSPs must establish their AI ambition and vision. Four example approaches are outlined, each requiring increasing levels of investment:[34]

– **Non-differentiated adoption**: Consume third-party AI services, with progression measured through an AI maturity model.

– **AI-enabled differentiation**: Train existing AI models with proprietary data and assets.

– **Bespoke foundations**: Build bespoke LLMs/small language models (SLMs) which are specialized for CSP needs and services.

– **AI-service provision**: Build AI use cases and applications for end customers.

This articulation helps define success criteria, which in turn informs a clear value-based initiative prioritization model and resulting asset, capability and investment requirements.

Based on these requirements, CSPs are equipped to adopt a comprehensive approach to key challenges and enablers, including technical assets, workforce capabilities and responsible AI principles, frameworks and practices.

The level of ambition will also determine their ecosystem partnership strategy, which is the subject of Section 4.

## 3.1 Data, infrastructure and architecture

**❝ A value-based approach to prioritize critical data and identify unused "dark data" can streamline modernization efforts.**

The success of AI models hinges on a strong data foundation that can ingest, correlate and analyse data from multiple sources while enabling integrated, decentralized access for diverse use cases. This approach not only avoids disconnected automation of existing processes but also reimagines processes from the ground up using agentic architecture.

However, legacy telecommunications systems have evolved organically with hyper-customized applications, leading to siloed data pools. A lack of "clean, quality, usable data" is perceived as the single largest challenge to implementing AI at scale.[35] Further exacerbated by unreliable data quality, accessibility and validity, this contributes to the invisible twin of tech debt – data debt, the inability to unlock value from the vast pools of data with unreliable quality, accessibility and validity. This creates a reliance on manual interventions for both insight generation and data housekeeping – a classic case of looking for a needle in a haystack. The lack of a clean data core makes it difficult for the organization to implement AI. Moreover,

the demand for integrated, unstructured data sources to support genAI exacerbates this problem.

While 92% of senior CSP executives recognize the role of new data architectures, only 28% have implemented data mesh architectures that enable decentralized access.[36] Modernization, therefore, is imperative.[37] A value-based approach to prioritize critical data and identify unused "dark data" that is thought to account for 65% of the total data held by organizations[38] can streamline modernization efforts.

Beyond data, technical infrastructure must support AI with assets such as compute (GPU), model orchestration and agentic frameworks. Complementary core capabilities – advanced analytics, natural language processing and automation – complete the stack.

CSPs face strategic choices: develop capabilities in-house, co-develop solutions with partners or buy solutions off the shelf. These decisions will profoundly influence required skill sets, operating models and processes across the organization.
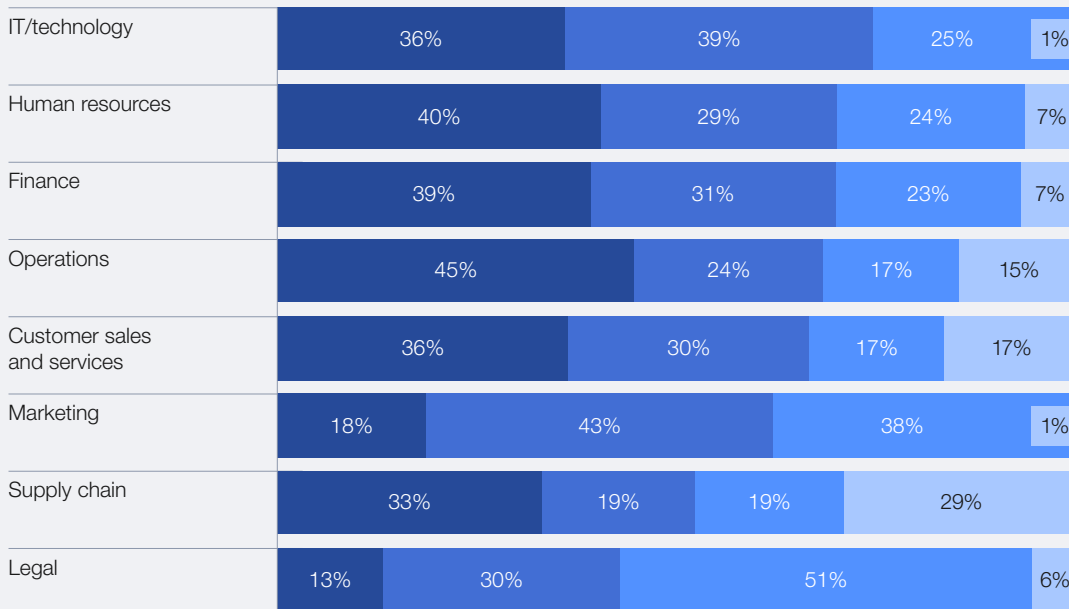
## 3.2 | Workforce, talent and culture

As technical architecture and capabilities advance, required skill sets are shifting, with a decline in configuration tasks and an increase in software development. This has led to 64% of CSPs reporting a "high demand" for AI/ML specialists, with only 3% finding it "not difficult" to meet these demands.[39]

While it's possible to reskill/upskill existing workers, one survey shows that only 21% of CSPs have a mature strategy for AI training or improving senior leadership's fluency in AI concepts, technologies and applications.[40]

Cultural barriers compound talent gaps: 46% of CSP executives noted that talent is often aligned along business functions rather than broader capabilities, which stifles cross-functional collaboration, innovation and organizational agility.[41]

The scale of change across CSPs is significant. A recent analysis indicates that up to 65% of current working hours across functions will be transformed by LLMs (36% automated and 30% augmented).[42] These statistics underscore a significant shift in the skills required and operational hours needed, challenging CSPs to manage this transition responsibly.

FIGURE 3 | **Levels of automation and augmentation of worker activities within CSPs**



| Function | Higher potential for automation | Higher potential for augmentation | Lower potential for augmentation or automation | Non-language tasks |
|---|---|---|---|---|
| IT/technology | 36% | 39% | 25% | 1% |
| Human resources | 40% | 29% | 24% | 7% |
| Finance | 39% | 31% | 23% | 7% |
| Operations | 45% | 24% | 17% | 15% |
| Customer sales and services | 36% | 30% | 17% | 17% |
| Marketing | 18% | 43% | 38% | 1% |
| Supply chain | 33% | 19% | 19% | 29% |
| Legal | 13% | 30% | 51% | 6% |

● Higher potential for automation  ● Higher potential for augmentation
● Lower potential for augmentation or automation  ● Non-language tasks

**4 million**[1]
Number of employees

On average, 65% of working hours can be transformed[2] by LLMs. Of which, 36% of the time is susceptible to automation and 30% is susceptible to augmentation. It means that workers on average spend this amount of time on tasks that could be significantly impacted by genAI.
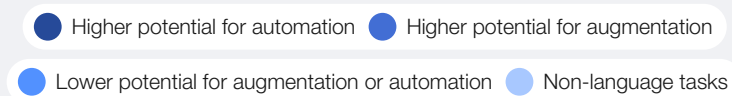
**Note:** Values may not add up to 100% due to rounding.
**1.** Total workforce included in the analysis. **2.** Transformation is defined by the high potential for automation and augmentation.
**Source:** Accenture research analysis based on O*NET and national statistical databases from 22 countries and 19,000 work tasks. CSP-specific data.

## 3.3 | Responsible AI

AI technology is evolving rapidly, and while regulators play a critical role, CSPs must self-govern using their own responsible AI principles and taxonomy until broader regulations and use cases mature. The World Economic Forum telecommunications community highlights the imperative of maintaining regulatory compliance, trust credentials and service reliability. Where AI implementation impacts their ability to provide critical communication services, they face the risk of severe penalties and reputational damage.

AI-related risks span business functions and include intellectual property (IP) exposure, data bias in automated decision-making, inadequate outcomes (for example, in automated customer service responses) and confidentiality or privacy risks. To manage these risks, a clear understanding and control over the data foundations that drive AI predictions and automation are essential.

Region-specific standards and expectations also add complexity, with varying definitions of "sensitive data". The use of LLMs introduces further challenges, such as ensuring social inclusivity through multilingual capabilities, accessibility and sustainability.

Sustainability is particularly pressing. Public corporate social responsibility reports show that 68% of the global industry (by revenue) must significantly cut emissions by 2030 to meet targets.[43] Incremental energy use from LLMs should be viewed through this lens, balanced by energy-saving use cases and SLMs to reduce both energy and compute costs.

To aid self-governance, industry bodies have provided resources such as Amazon Web Services (AWS) and TM Forum's Generative AI Maturity Interactive Tool[44] and *The GSMA Responsible AI Maturity Roadmap*.[45] These tools help CSPs identify and address current process gaps. The World Economic Forum's Digital Trust Framework can also be used to consider the security, reliability, accountability, oversight and ethical use of digital technologies.[46]

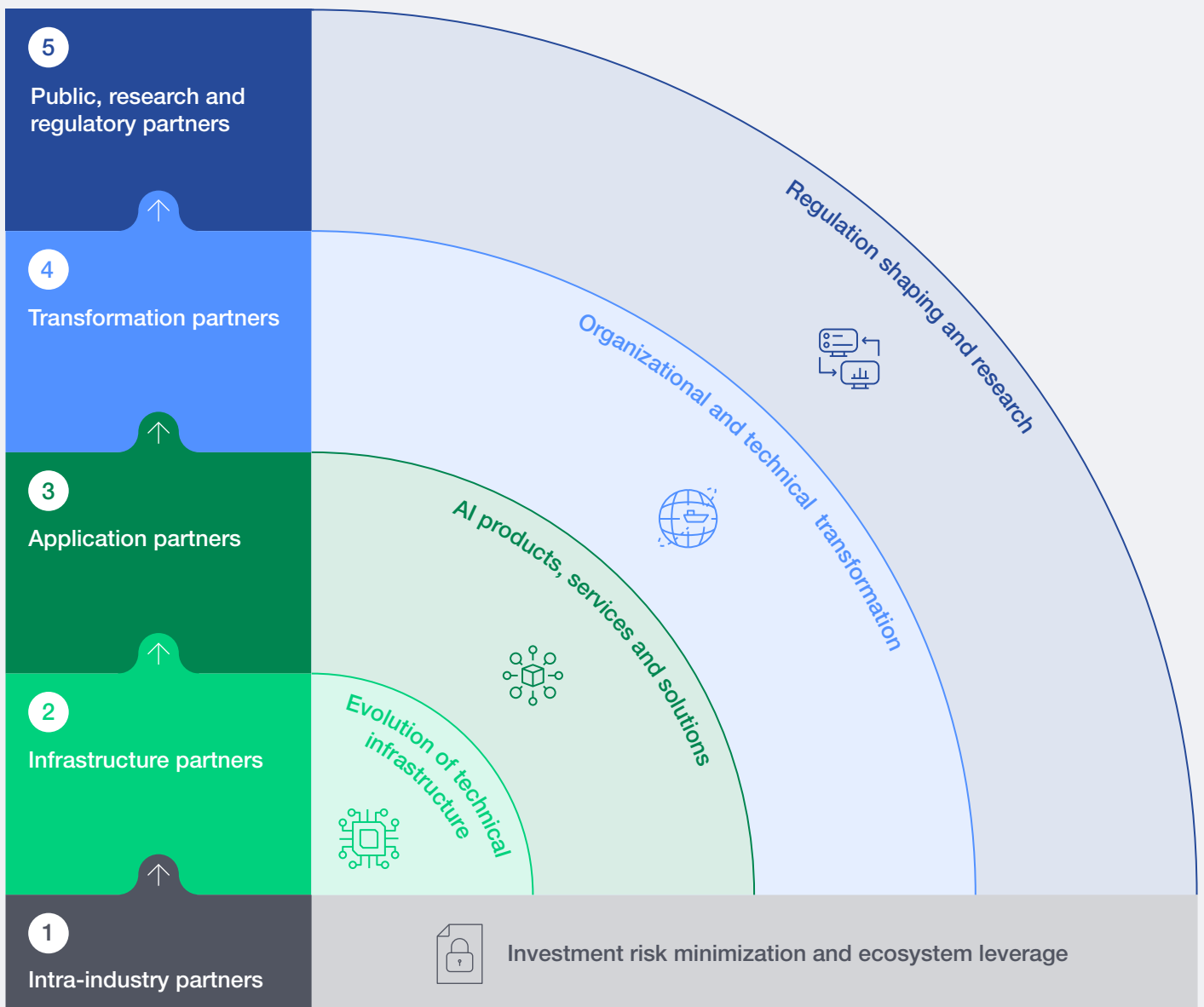# Collaboration opportunities

**4**

## The telecom industry must expand beyond its traditional and OEM ecosystem and invest in cross-industry and public-private collaborations.

CSPs are vital contributors to the AI ecosystem, providing connectivity, customer relationship management (CRM) tools, hardware and local data centres. However, AI transformation often requires assets and capabilities beyond their core remit and CSPs are faced with the decision of whether to build, buy or partner to acquire them.

Ecosystem partnerships will play an important role, with 76% of telecom leaders re-evaluating their ecosystem to increase genAI[47] innovation.

In shaping AI transformation strategies, CSPs should explore partnerships across intra-industry, infrastructure, application provision, transformation and public or research organizations. Notably, some partners will span multiple categories to form part of an open ecosystem.

FIGURE 4 | **CSP ecosystem categories**



**5**
Public, research and regulatory partners

**4**
Transformation partners

**3**
Application partners

**2**
Infrastructure partners

**1**
Intra-industry partners

Regulation shaping and research

Organizational and technical transformation

AI products, services and solutions

Evolution of technical infrastructure

Investment risk minimization and ecosystem leverage

## 1 Intra-industry partnerships

CSPs face the challenge of finding the delicate balance between overinvesting in AI opportunities before use cases mature and under-investing and risking competitive disadvantage. While collaboration between CSPs requires clear scoping and guardrails to maintain competitive positioning, intra-industry partnerships can help reduce investment overheads and strengthen their negotiating power in ecosystem collaborations.

For example, the Global Telco Alliance, a partnership of five global CSPs, aims to accelerate the AI transformation in existing businesses and create new AI-driven business opportunities. It will co-develop a new "telco AI platform", which will serve as the foundation for new AI services[48] and launch a joint venture to create a multilingual LLM tailored to industry needs.[49]

Collaboration with global industry groups like GSMA and TM Forum enables CSPs to help define responsible AI boundaries, share best practices and align on strategies to educate customers about new AI capabilities.

## 2 New telecommunications infrastructure partners

To support their transformation and capitalize on AI-enabled opportunities to offer infrastructure, AIaaS SMB products and industry solutions, CSPs are developing their tech architecture to include the cloud, edge compute and connectivity. Infrastructure collaborations can accelerate this evolution and enable tailored implementations in each layer.

For connectivity, traditional vendors are helping CSPs develop automated network solutions through "off-the-shelf" solutions and offering access to innovation labs.

At the edge, partnerships with GPU providers enhance compute capabilities, enabling CSPs to offer "infrastructure as a service" and securely store and process sovereign data.

Cloud providers can support sovereign cloud implementations by deploying within data centres. This facilitates data modernization and inferencing capabilities such as ML frameworks, natural language processing and predictive analytics, enabling scalable and tailored AI models while minimizing infrastructure investments for CSPs transformation and AIaaS offerings.

Given the complexity of a multimodal, multi-application ecosystem, CSPs require a vendor-neutral cybersecurity layer, which can be developed in collaboration with infrastructure and application partners.

## 3 Application partners

To capitalize on enabling infrastructure, CSPs require data models, algorithms and integration with transactional components to embed modernization and AI implementation into their operational processes.

Application partners can accelerate value realization by providing end-to-end solutions within specific domains. However, this approach risks creating isolated AI systems, which can be mitigated by building centralized capabilities.

## 4 Transformation partners

Enterprise reinvention requires a clear value realization strategy, effective ways of working (operating models, processes and skill sets), robust data foundations and technology architecture, responsible AI and new processes and systems for continuous monitoring and adjustment.

Transformation partners act as orchestrators, aligning these components into a cohesive "to-be" blueprint and phased implementation roadmap. Their expertise also enables CSPs with end-to-end implementation, while managing complexities and nuance at every stage. Ideal partners bring experience in enterprise-wide AI implementation and competencies across all transformation components.

## 5 Private/public/academia

Partnerships with governments and regulatory bodies can help CSPs play a role in regulation and policy development, support public infrastructure projects and access or influence public development funds. Collaboration with academic institutions promotes innovation, provides resources for upskilling and develops future talent. CSPs can also shape academic pathways with tailored learning materials to meet industry-specific needs.

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BOX 10 | **Climate & Natural Disasters Platform**

The Climate & Natural Disasters Platform (CNDP), developed by e& in partnership with the United Nations Development Programme (UNDP), uses AI to respond to climate change and natural disasters. It processes live and historical public data from over 85 languages, including social media, UNDP data and media outlets, to generate actionable insights.

By enhancing situational awareness and supporting timely interventions, the platform empowers authorities to respond rapidly to crises, address infrastructure issues and improve disaster relief efforts. CNDP ensures comprehensive monitoring, proactive insights, and coordination to save lives and drive sustainable development.

# Conclusion

The combination of traditional AI and genAI can reinvent the telecommunications industry and reinforce its role as the digital backbone of tomorrow's economy. This report has highlighted many valuable use cases, including some emerging and future scenarios that will continue to redefine the future of telecommunications.

To fully capture the opportunity of AI, telcos need a vision and a strategic approach on where to focus their investments and where to tap into existing and new partnerships. Following that vision, successful telcos will continue to invest in foundational elements, like data architecture and automation, and upskill their workforces while building on their trusted customer relationships to drive growth and innovation.

Ultimately, the telecom industry must expand beyond its traditional and OEM ecosystem and invest in collaborations across the technology stack, transformation enablers and the public sector. This is essential to managing the complexities and rapid pace of innovation, both today and in the future.

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# Endnotes

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