

## **REPORT: Telco AI will help address demands of industry investors**

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## Abstract

The telecommunications industry is currently experiencing rapid advancements in Artificial Intelligence (AI). This shift is moving networks and services towards being inherently autonomous, adaptive, and deeply integrated into our digital lives. For telecommunications operators, AI presents opportunities to enhance customer experience, drive operational excellence, and optimise network investment.

It is also an opportunity to create new value for investors. Low Return on Invested Capital (ROIC) has been an industry bugbear for years. If AI can deliver on its promise, then the Industry will find it easier to attract continued investment needed to underpin national digital transformation.

## AI's potential for telecommunications operators

The potential of AI is attracting heightened attention after Telstra's recent announcement of its Connected Future 30 strategy (see our report "[Telstra's Connected Future 30 drives a new industry narrative](#)"). AI offers significant opportunities for telecommunications operators, redefining how they manage networks, interact with customers, and drive business growth. The key areas where benefits are expected are:

**Operational Efficiency and Cost Reduction:** Agentic AI is automating telecommunications network operations, leading the TM Forum to project a 30% long-term reduction in operational costs. AI automates complex tasks such as traffic management, resource allocation, and maintenance, reducing the load on network operators. This also includes automating order handling, compliance testing, and service activation.

**Network Investment Optimisation:** AI agents can also monitor network traffic and automatically adjust parameters to reduce latency, ensure consistent performance, and predict outages, enabling proactive maintenance. This capability extends to designing networks. Examples include Telenor and Ericsson's work on RAN optimisation for capacity and power consumption.

**Advanced Security and Fraud Detection:** AI can provide enhanced network security solutions by adapting based on its learning. It can monitor patterns in network traffic and adjust security protocols based on identified threats, as well as detect SIM swap fraud and billing anomalies.

**Accelerated Innovation:** AI accelerates application development and the creation of innovative solutions to transform OSS/BSS. This includes accelerated application development, packaging, testing, and deployment, and promoting application component reusability. AI will aid in the monetisation of 5G networks for real-time IoT applications and ensure consistent performance for a growing number of applications connected to 5G networks.

**Customer Experience and Personalisation:** AI agents can manage a significant portion of customer service interactions. CISCO has projected ([PDF](#)) that AI could resolve 68% of such interactions by 2028. They can also personalise customer sales interactions, predict customer needs, and recommend appropriate products and services to maximise satisfaction. This includes handling complex queries via chatbots with contextual reasoning and context-aware communications across a range of digital channels.

## Challenges in Implementing Telco AI

Despite the potential, the implementation of AI in the telecommunications sector faces significant hurdles.

**Data Quality, Volume, and Bias:** Agentic AI's effectiveness depends entirely on high-quality, unbiased, real-time data. Operators possess vast amounts of data, but the challenge is to ingest, collate, and ensure the quality of data stored in silos across the network. Avoiding bias is also critical, as unreliable data can lead agents to learn, amplify, and reinforce systemic biases over time, compromising network quality.

**Legacy Systems and Integration Complexity:** Many telecom companies operate with legacy architectures that create digital transformation bottlenecks. Integrating AI solutions across existing, disparate systems - from core network systems to operations, management, data, and security systems - is complex and time-consuming.

**Managing Human Oversight:** Telecommunications operators hesitate to fully embrace unsupervised AI-enabled automation in production environments, with the majority still preferring supervised or AI-assisted manual operations. Further, regulators are unlikely to tolerate fully automated solutions for customer service and service management. Reaching a consensus on the balance between AI agent autonomy with human-in-the-loop requirements imposed by regulators is crucial, as autonomous networks will work best with globally aligned human oversight boundaries. Robust governance mechanisms are needed to align generated agents with ethical guidelines and data privacy regulations.

**Standardisation Gaps:** Industry standards for multi-agent collaboration frameworks are lacking. Existing protocols often focus on IT-centric scenarios, not fully considering the communication characteristics of telecommunication networks. This includes standardisation rhythm, high reliability requirements, and security vulnerabilities.

**Talent and Skills Gap:** The increasing costs of niche tech talent also contribute to implementation and maintenance costs.

**Cost and ROI Justification:** While the potential for AI is high, actualising that potential to deliver real business results has been challenging. There is a general lack of clarity around value and still a focus on basic cost or time-saved value drivers over strategic, telecom-focused measures like revenue velocity and network reliability. Justifying the investment requires moving beyond short-term savings to long-term ROI, which can be difficult given initial significant upfront investments.

**Competition with Cloud AI Providers:** Telecom operators face competition from hyperscalers, necessitating a strategic redefinition of their roles to avoid commoditisation and monetise edge intelligence and network-aware AI agent services.

## Why does this matter? -the AI agenda for telcos

These challenges matter because they set the agenda for the AI strategy that needs to be adopted by telecommunications operators. To effectively harness AI and overcome implementation challenges, telecommunications operators must:

**Develop a Clear Strategic Vision:** Telecommunications operators need a clear vision and strategic foresight. The best way to proceed is to identify high-impact use cases that enhance customer experience, operations, and networks. Examples include order processing, customer communication, and autonomous network agents.

Rather than a radical overnight transformation, an incremental step change is more realistic for AI's impact in the near term. A hybrid model, combining commercial off-the-shelf (COTS) solutions with targeted custom development, is the most likely path to emerge. This combines speed of deployment with competitive differentiation.

**Focus on Value and Long-Term ROIC:** While high-impact use cases are the launching point, these need to be chosen within a long-term, value-focussed framework. The focus should shift from merely justifying costs to unlocking transformative capabilities that drive sustainable growth, efficiency, and customer satisfaction. This requires a holistic investment case that includes total cost of ownership (TCO) and forecasts long-term benefits. This structured, value-driven approach is essential to avoid misaligned investments.

**Modernise Data Platforms:** Investment in a robust, integrated data platform is crucial. Operators need to ensure their OSS/BSS architecture is capable of handling autonomous decision-making. This requires that networks evolve into a distributed computing network via edge computing for real-time processing and low latency. Integrating AI and automation layers can aggregate high-priority data quicker and cheaper for AI models.

**Invest in Talent Development and Upskilling:** This is a perennial challenge. Telecoms must build an AI-literate workforce through upskilling, cross-functional collaboration, and feedback-driven iteration to reduce resistance and improve adoption.

**Foster Collaboration and Partnerships:** While internal skills development is essential, realising the full potential of AI also requires collaboration. Partnerships with technology providers are already underway to develop AI solutions for areas like RAN optimisation and network analysis. Joint innovation and industrial collaboration will accelerate the development of telecom-specific LLMs and the overall ecosystem.

**Establish Strong Governance and Ethical AI Frameworks:** Operators must implement robust governance mechanisms to align generated agents with ethical guidelines, regulatory requirements (like data privacy), and business objectives. This includes human-in-the-loop oversight, fairness audits, and API-driven governance to manage risks. Regulators need to generate clear but workable guidelines to facilitate investment.

If the challenges can be overcome, there is real potential to achieve significant productivity increases in the telecommunications industry. This will help to address the industry bugbear of low ROIC, and attract more investment overall into the sector, underpinning national digital transformation. This highlights the importance of telcos' getting the AI balance right and successfully executing their AI strategies.

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