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TELECOM INDUSTRY OUTLOOK 2025

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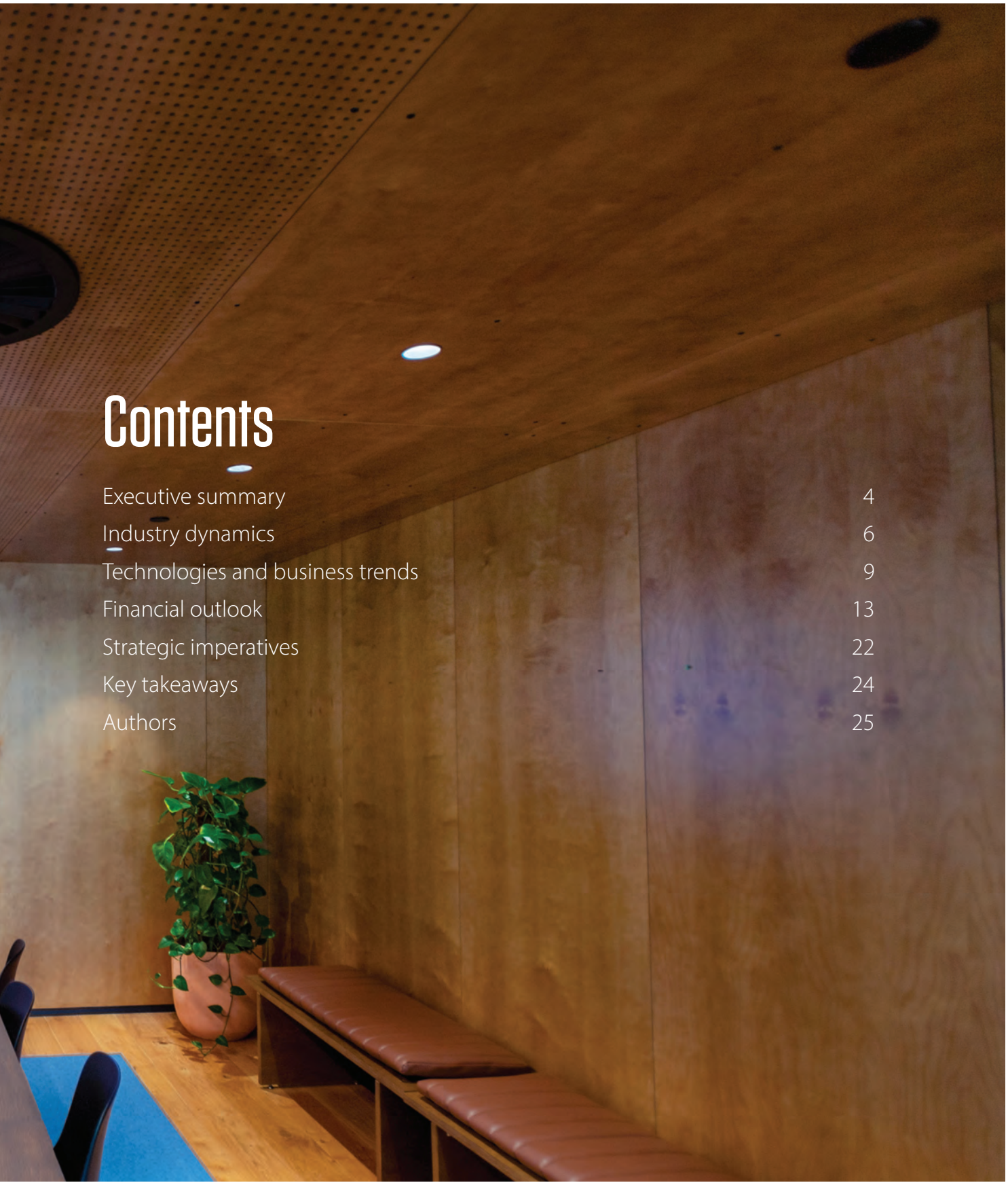

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EXECUTIVE SUMMARY

The telecom industry in 2025 is navigating a complex landscape, marked by technological innovation, shifting market dynamics, and evolving regulatory frameworks. While revenue growth has plateaued globally, driven by market saturation in North America and Europe, high-growth regions like Asia-Pacific (APAC) present opportunities fueled by population expansion and increased 5G adoption.

Telecom operators continue transitioning from traditional connectivity providers to platform-centric businesses, leveraging cloud-native architectures and artificial intelligence (AI)-driven automation to enhance agility, reduce costs, and deliver personalized customer experiences. Generative AI has opened up new revenue opportunities, driven by growing demand from businesses across industries for AI ready infrastructure and advanced connectivity. A recent study reflected that more than half of surveyed companies plan to increase telecommunications and technology spending this year as they rush to embrace AI.

Key technological trends shaping the sector include the expansion of private 5G and edge computing to support Industry 4.0 — the integration of automation, data exchange, and smart systems in manufacturing and logistics; satellite internet to bridge rural connectivity gaps; and early-stage investments in quantum networking, a technology that uses quantum mechanics to

enable ultra-secure communications, though still largely experimental today.

Financial discipline remains paramount as operators face flat revenues and rising costs, emphasizing the need for efficient capital allocation, workforce optimization, and debt management. Cybersecurity and regulatory compliance are critical challenges, with AI-powered cyberthreats rising and governments enforcing stringent data sovereignty rules.

To succeed, industry players must accelerate cloud and AI adoption, invest in quantum-ready infrastructure, expand satellite and edge capabilities, maintain financial rigor, and prioritize cybersecurity.

INDUSTRY DYNAMICS

Operators are moving past basic connectivity, expanding into platform commercialization and value-added services (Figure 1) to drive fresh revenue streams and innovation. At the same time, evolving regulatory frameworks around data sovereignty and privacy, along with a strong focus on sustainability, are reshaping how telecoms develop localized cloud solutions, adopt energy-efficient technologies, and form alliances to ensure compliance, reduce environmental impact, and maintain competitive advantage.

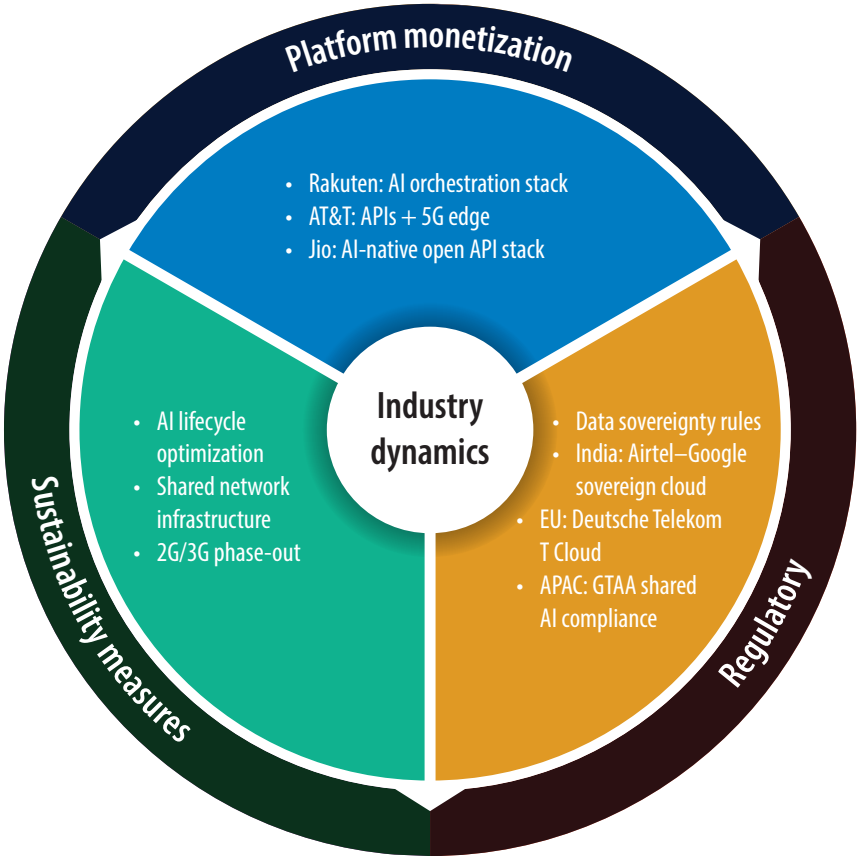
Value-added services

Over the past decade, telecom operators have steadily moved beyond basic connectivity into platforms, software, and services to increase average revenue per user (ARPU). Bundling entertainment, security, and insurance into consumer packages has become standard practice, but bundling is no longer the endgame. What's new is the strategic shift toward platform commercialization and infrastructure monetization where operators sell their tech stacks, orchestration engines, and operational frameworks to other operators or enterprises.

Rakuten, for instance, has deployed a cloud-native open radio access network (Open RAN), an interoperable approach that decouples hardware and software, thus avoiding single-vendor lock-in. It now globally markets its Rakuten Symphony stack, with AI-driven orchestration as a turnkey solution for other operators.

Similarly, AT&T is exposing advanced network application programming interfaces (APIs) and 5G edge services to developers, scaling network as a service offerings via hyperscaler

Figure 1. Key forces shaping telecom



Source: Infosys Knowledge Institute

platforms and enabling on-demand programmability.

In India, Jio Platforms has partnered with AMD, Cisco, and Nokia to launch an Open Telecom AI platform, positioning itself as a global tech vendor with an AI-native, open API stack for automating network and service layers.

Regulatory frameworks

As telecoms merge with cloud and AI, regulatory frameworks are evolving around data sovereignty and privacy. Governments now mandate that personal data, especially from nonconsenting customers, stays within national borders, and that consent is explicitly managed. In response, major cloud providers and telecom players are launching local sovereign cloud services to comply with these rules.

Bharti Airtel, in partnership with Google Cloud, is developing an India-only sovereign cloud designed for government and enterprise customers. In Europe, Deutsche Telekom's T Cloud offers sovereign, hybrid cloud services aligned with EU regulations, positioning DT as a local, trusted alternative to hyperscalers.

APAC operators have formed regional alliances such as Global Telco AI Alliance (GTAA) to avoid dependence on hyperscalers for cloud solutions and to strengthen regulatory compliance. The alliance, which includes Singtel, SK Telecom, Deutsche Telekom, and e& focuses on enabling shared AI infrastructure, co-development of language models, and adherence to local compliance requirements.

Sustainability and environmental responsibility

The telecom industry is taking sustainability goals seriously, with leaders like Ericsson and Elisa embedding AI into the design of sustainable 6G networks through initiatives like ATIS Green G, building on current 5G deployments, where AI-driven energy optimization has already delivered up to 20% daily energy savings in live 5G operations. Alliances such as BT, Vodafone, and Singtel's Joint Alliance tackle Scope 3 emissions, while Bharti Airtel and Reliance Jio cut CO_2 per GB by 86% with renewable-powered towers in APAC.

Other measures include phasing out legacy 2G and 3G to save energy and free spectrum for 4G/5G, while operators use AI-driven power management to optimize equipment lifespan, site selection, and data center efficiency.

Operators are adopting infrastructure-sharing models such as shared antenna towers and base stations to reduce duplication, speed deployment, and lower energy use. In rural areas, open-access fiber networks shared by multiple ISPs cut costs and environmental impact by minimizing redundant installations.

While sustainability and cost-efficiency are clear benefits, shared infrastructure raises questions about where operators gain competitive advantage. Now, differentiation must come from intelligent services, better customer experience, industry-specific solutions, and software-driven innovation.

Governments now mandate that personal data, especially from nonconsenting customers, stays within national borders, and that consent is explicitly managed.

TECHNOLOGIES AND BUSINESS TRENDS

The telecom sector has moved beyond simply offering basic connectivity and is now focused on delivering integrated digital solutions. Broader business trends (Figure 2) like automation, decentralized computing, and industry-specific service models are driving this shift. As a result, telecom providers have the chance to become key partners in helping enterprises reduce downtime, boost operational efficiency, and unlock new value through technologies such as AI, 5G, and cloud.

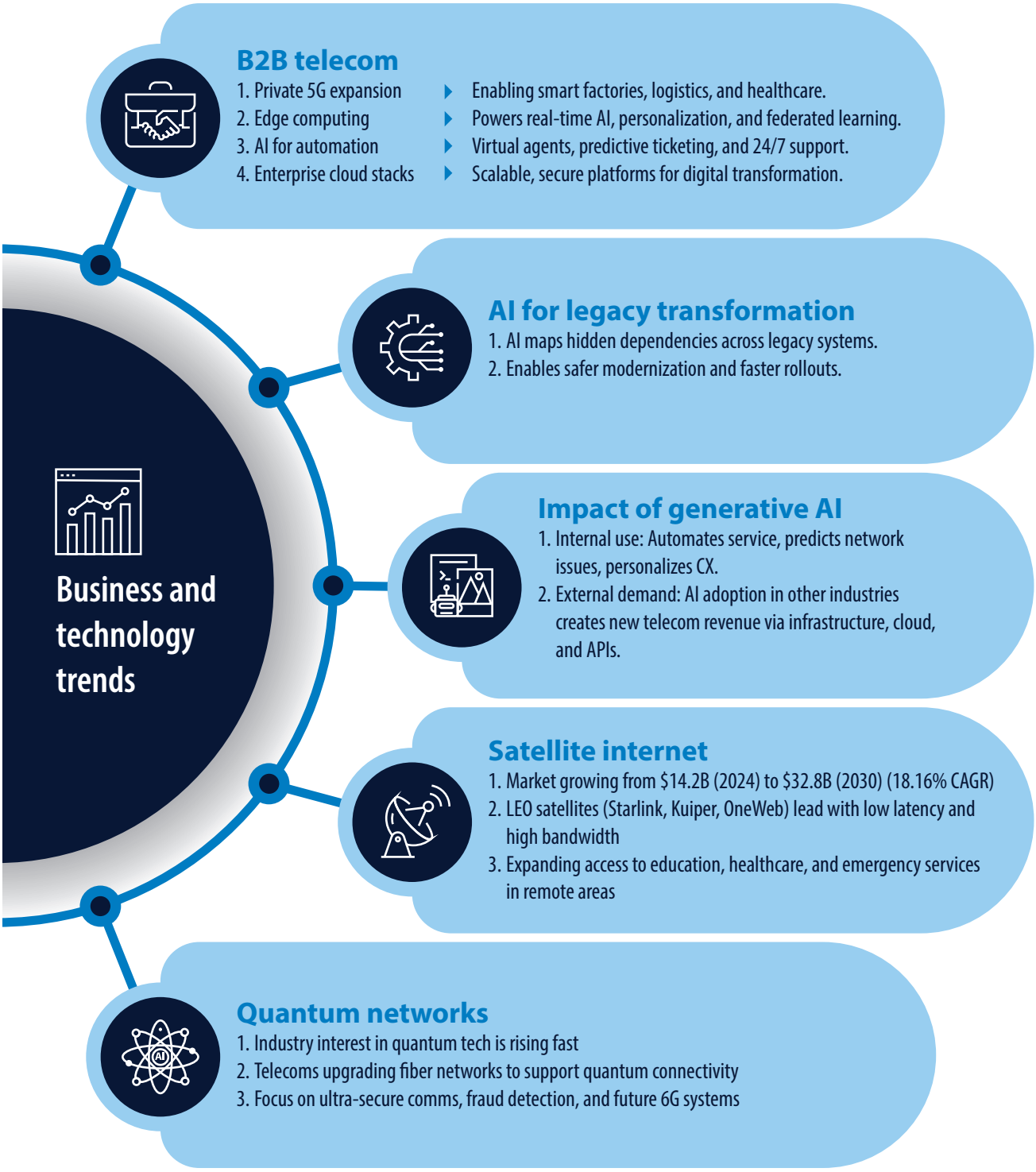
B2B telecom

The B2B telecom sector is steadily expanding, driven by technologies that enable new services and business opportunities:

1. **5G expansion:** 5G, especially private 5G, is going beyond faster speeds in B2B to enable sectors like manufacturing, healthcare, and logistics. For example, CJ Logistics in South Korea, one of Asia's largest warehouse network operators, partnered with Ericsson to implement a private 5G network at its 40,000 m^2 Ichiri logistics center. It replaced over 300 Wi Fi access points with just 22 private 5G radio dots.

2. **Edge computing:** This technology has evolved beyond simply reducing latency to becoming a core enabler of real time AI and hyperpersonalized services. It has emerged as a critical enabler for federated learning that trains models without centralized data. A practical application is privacy-preserving AI on wearables. Edge AI is increasingly used for energy-efficient processing, supported by hardware that runs large AI models with very low power consumption.

Figure 2. Trends driving telecom evolution



Source: Infosys Knowledge Institute

Private 5G networks and edge computing provide symbiotic support for Industry 4.0 applications. A prime example is Verizon's deployment at the UK's Thames Freeport, where private 5G combined with Nokia's MX Industrial Edge platform supports AI-driven analytics, real-time logistics orchestration, autonomous vehicle control, and predictive maintenance across multiple port and manufacturing sites.

3. **AI-powered automation:** In the B2B telecom space, the focus is shifting from traditional connectivity to outcomes-driven transformation, such as reduced downtime, faster time-to-market, lower churn, and cost-to-serve reduction. A recent study shows that 67% of organizations expect telecom partners to understand their specific industry challenges, such as low latency for finance and ultra-reliable connectivity for healthcare, and to provide flexible, tailored solutions, while 70% also seek a simplified, user-friendly customer experience. To meet this demand, providers are adopting AI and agentic AI tools across the stack. This includes AI-powered service desks featuring virtual agents, predictive ticket routing, and automated issue resolution that deliver faster response times, fewer handoffs, and 24/7 availability. Results are already promising — Verizon's implementation of generative AI has enabled it to predict the reason behind 80% of customer calls, allowing for more accurate and efficient routing.

4. **Enterprise-grade cloud services:** Telecoms offer scalable, secure cloud platforms tailored to business needs, supporting digital transformation across industries such as retail, finance, and healthcare. Jio platform integrates cloud infrastructure, AI tools, and billing systems into a unified stack, including enterprise-grade LLM as a service, allowing businesses to access advanced capabilities without requiring deep network or IT transformation.

AI models for legacy system transformation

AI models are increasingly used to predict and map dependencies across legacy infrastructure in telecom and other industries. Legacy systems often have complex, undocumented interconnections that make modernization risky and error-prone. AI-driven dependency analysis tools automatically scan codebases, configurations, and network logs to identify hidden relationships between components, services, and databases. The business impact is substantial: operators can simulate changes before rollout, predict failure points, and plan migrations with greater confidence and speed. This shift has drawn major players like Microsoft, which recently enhanced its mainframe modernization offerings with AI copilots. Ericsson has begun embedding AI capabilities into its operations support systems, business support systems, and mediation platforms to help telcos unify legacy and cloud-native infrastructure.

Impact of generative AI

Generative AI is transforming the telecom sector from both inside and outside.

Internally, telecoms are using generative AI to automate customer service, predict network issues, and personalize offerings, which is helping them boost efficiency and reduce churn. Externally, the adoption of generative AI across industries like finance, retail, and media is driving demand for AI-ready infrastructure, cloud services, and API platforms that telecoms can provide. The result is new revenue streams, deeper enterprise engagement, and a more strategic role in digital transformation.

Satellite internet

The satellite internet market is expected to grow from $14.2 billion in 2024 to $32.8billion by 2030, registering a compound annual growth rate (CAGR) of 18.16% over the forecast period. There are low Earth orbit (LEO) constellations like Starlink that currently dominate the scene with lower latency and higher bandwidth, making them better suited for real-time applications, while older geostationary Earth orbit (GEO) satellite providers such as Viasat and SES remain active in the market, offering broader coverage but with higher latency and more limited speeds. Though LEO systems require thousands of satellites and more complex ground infrastructure to maintain seamless coverage, they are clearly winning the market space. This success is fueling the rise of other major competitors such as Amazon's Project Kuiper and OneWeb, both rapidly deploying their own LEO constellations to challenge Starlink's dominance.

From education to healthcare, satellite internet has the power to bring a transformative impact by bridging connectivity gaps in remote and underserved areas. This potential to unlock critical services and foster social inclusion should be the key reason the sector attracts investment from both public and private investors.

Quantum networks

Quantum networks that connect quantum and classical devices using qubits have the potential to enable ultra-secure communication and shared quantum computing. With applications ranging from encryption and fraud detection to next-generation communication systems, industries such as finance, healthcare, and telecommunications are actively exploring their potential. As interest and research in quantum computing continue to grow, telecom operators are investing in upgrading fiber networks to support emerging quantum technologies.

Deutsche Telekom has successfully implemented entanglement-based quantum communication over existing commercial fiber infrastructure, which is a breakthrough because it demonstrates that quantum networks can operate on the same physical infrastructure as today's classical telecom systems. Toshiba Europe has achieved secure quantum key distribution over 254 km of standard telecom fiber without cryogenics. Cisco has unveiled a prototype quantum entanglement chip and opened a new lab for networking quantum processors.

FINANCIAL OUTLOOK

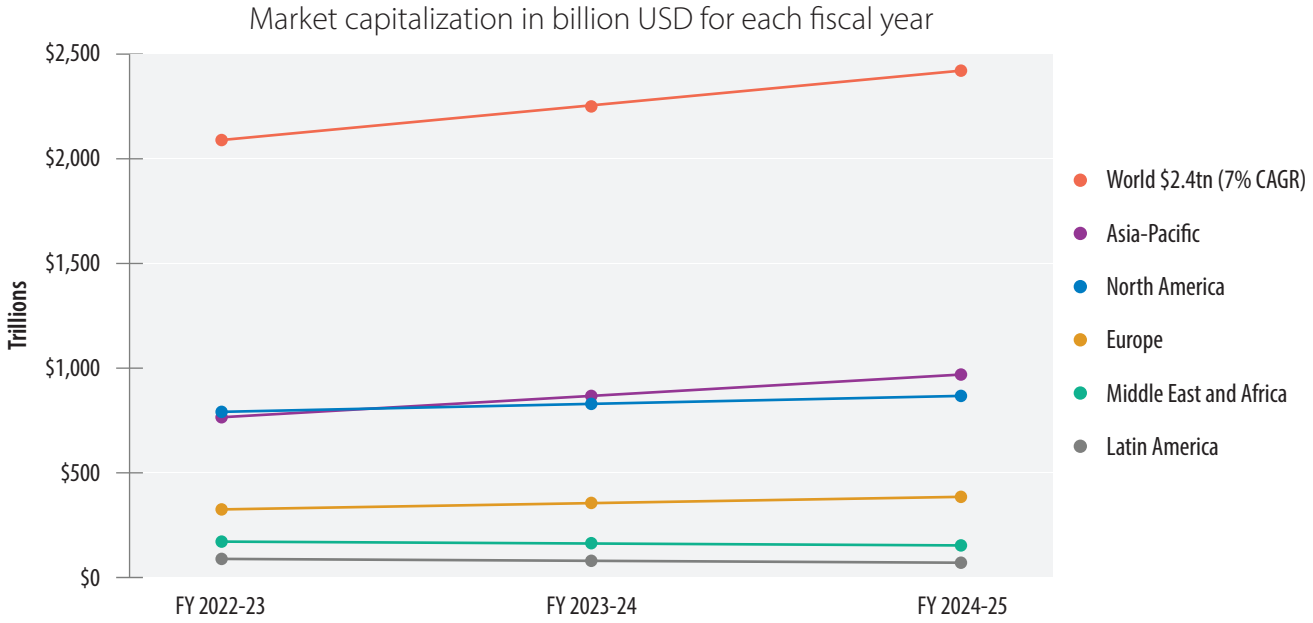
Infosys Knowledge Institute did a financial analysis of approximately 65 telecom companies, with more than $4 billion in revenue, worldwide, based on data sourced from the Refinitiv database, annual reports, and SEC filings, reveals several notable trends.

In summary, despite modest market capitalization growth of around 7% compound annual growth rate, the global telecom sector is facing headwinds from flat revenues, declining capital expenditure (CapEx), and increasing reliance on internal efficiencies. Profitability metrics such as earnings before interest and taxes (EBIT) margin, return on capital employed (ROCE), and free cash flow have improved, largely driven by cost-cutting, workforce reductions, automation, and better capital deployment rather than top-line growth. Regional disparities are widening with APAC leading in growth and investment, while Europe and North America grapple with market saturation and rising debt ratios. Liquidity is weakening in most markets, raising concerns over short-term financial resilience. Going forward, telecom operators are expected to focus investment on fiber, edge and cloud infrastructure, and cybersecurity, while navigating persistent risks from regulatory uncertainty and cyberthreats.

Market capitalization

The telecom sector's market capitalization has grown at around 7% CAGR over the past three years to nearly $2.4 trillion (Figure 3), but this is expected to ease to around 6.5% in the mid-term, over three to five years. Growth varies by region: APAC leads with 13% CAGR, driven by population growth, rising connectivity demand, and rapid 5G

Figure 3. Telecom market cap grows at 7% CAGR



Revenue per employee reflects the median value calculated from the data ofapproximately 60 telecom companies having an annual revenue of more than $4 billion. This metric provides insight into efficiency of the telecom companies by measuring revenue generated by the company divided by total number of employees.

Source: Infosys Knowledge Institute

rollout. North America and Europe follow with 9% and 5%, respectively, constrained by market saturation. Latin America and the Middle East and Africa (MEA) saw declines due to regulatory hurdles and infrastructure challenges, especially in rural areas. These patterns point to future value creation concentrating in high-growth markets like APAC.

Revenue

The revenue growth in the telecom sector has seen a marginal decline over the past three fiscal years (Figure 4). In fact, the revenue change year on year has been declining. Only APAC has seen a marginal increase in revenue (2%), while that in the rest of the world has declined. This signals a need for telecom operators to rethink revenue models. Focusing on service innovation, enterprise solutions, and digital ecosystems will be key to sustaining long-term profitability.

Capital expenditure and revenue

CapEx in the telecom sector has been in decline since 2022, indicating a slowdown in investment activity (Figure 5). The CapEx to revenue ratio shows that stagnant revenues are directly impacting the industry's ability to sustain capital spending. The continued drop in CapEx intensity not only reflects financial pressure but also raises concerns about delayed network upgrades and expansion, which could undermine long-term competitiveness and growth of telecom companies.

Figure 4. Revenue remained flat in the most recent fiscal year

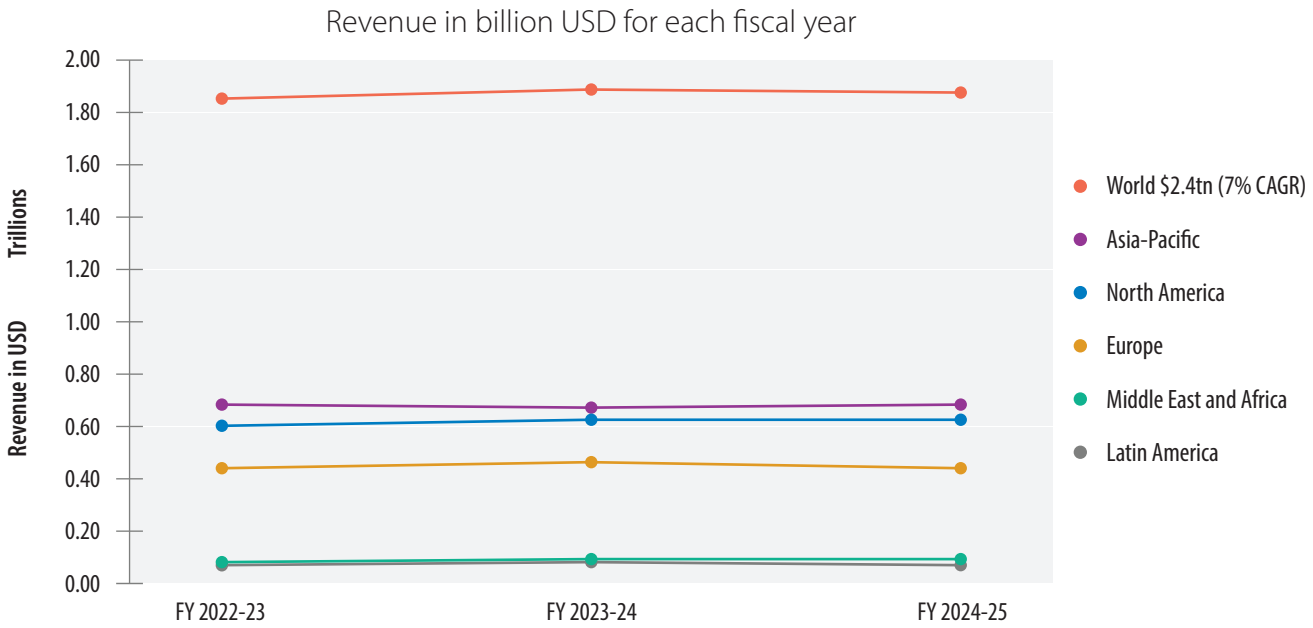


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Figure 5. Telecom CapEx and investment intensity decline since 2022

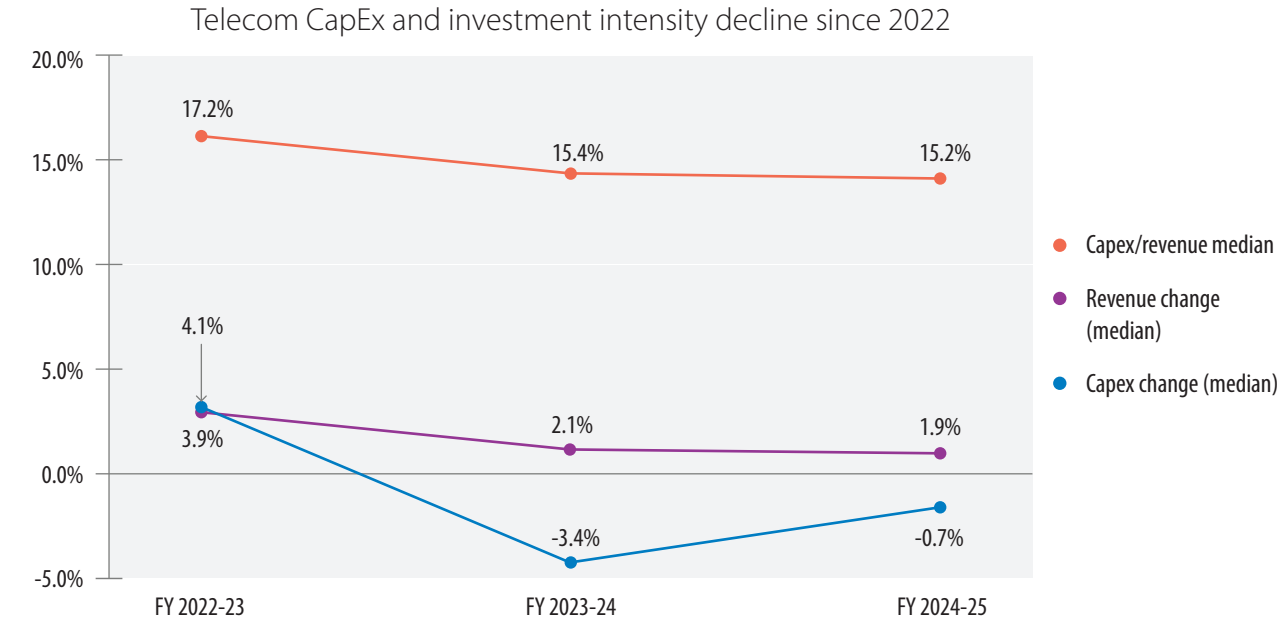

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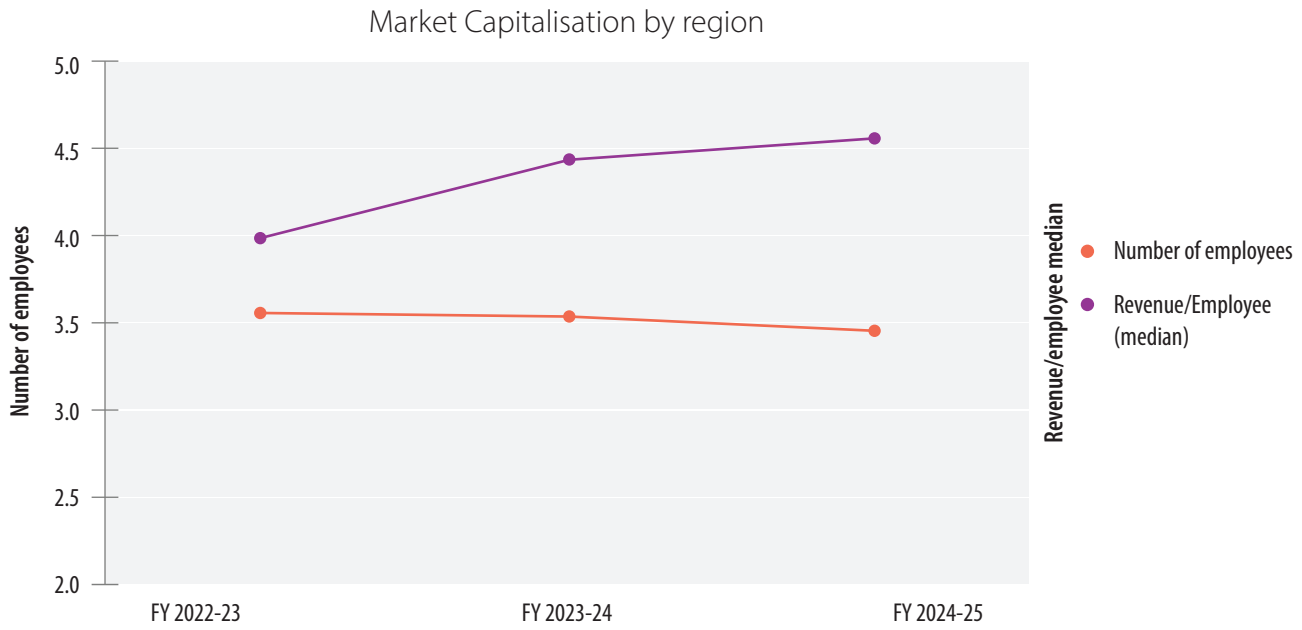
Figure 6. Improved employee efficiency driven by workforce reduction



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Efficiency

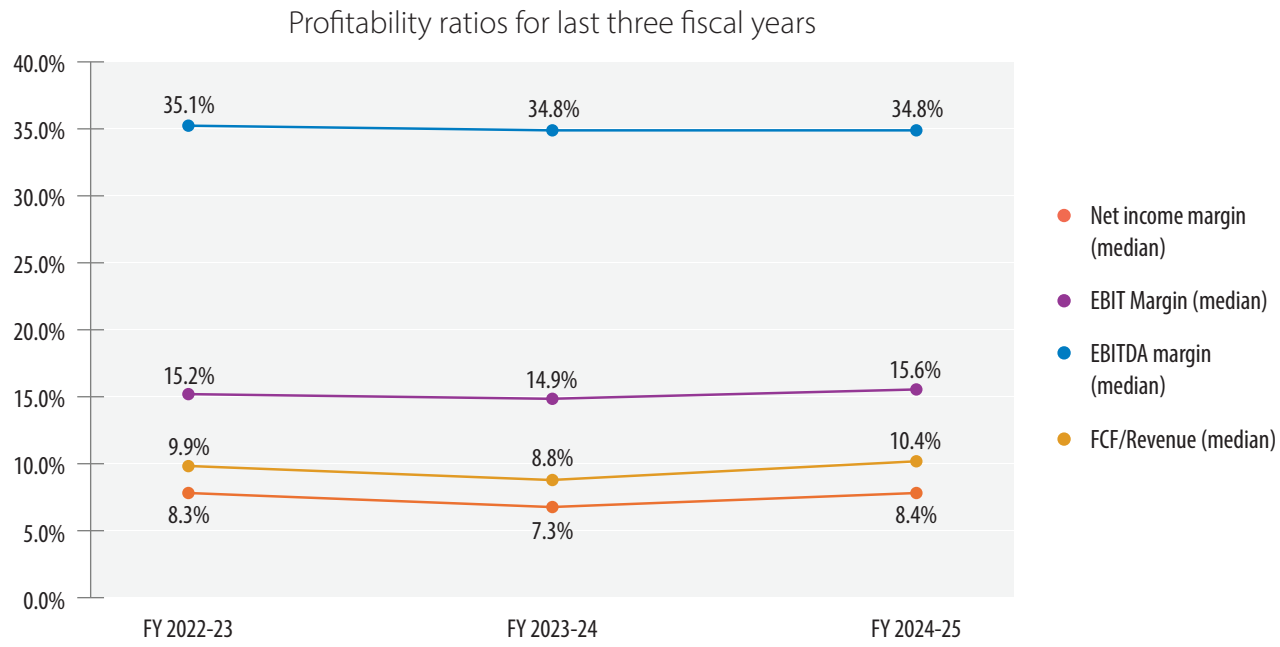
Efficiency in the telecom sector, measured by revenue per employee across the top 55 companies, has improved, primarily due to workforce reductions (Figure 6). With revenue largely flat and margin pressures increasing, many operators are cutting costs by reducing headcount. This trend is expected to continue as AI and automation are adopted more widely in both front- and back-office operations. As a result, future efficiency gains are likely to come from technology adoption rather than workforce expansion.

Profitability

This analysis includes net income margin, EBIT margin (operating profit after expenses), EBITDA margin (excluding nonoperational costs), free cash flow (FCH) to revenue (free cash generated through sales after expenditures), return on assets (ROA), return on equity (ROE), and return on capital employed (ROCE).

As shown in Figure 7, over the past three fiscal years, the median net income and EBITDA margins have remained stable. The median EBIT margin and FCH to revenue ratio both improved between 2024 and 2025, suggesting that the industry is actively restructuring its operations and management to enhance efficiency and cash flow. However, with revenue expected to remain flat in the coming year, companies are likely to prioritize cost savings, ongoing workforce reductions, and increased AI-driven automation across

Figure 7. Efficiency drives profitability amid steady revenue



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Source: Infosys Knowledge Institute

operational and business processes to sustain profitability.

As shown in Figure 8, ROA and ROE have recovered following a dip in 2023–24, while ROCE has shown a steady upward trend. These improvements are supported by higher net income margins, stable EBITDA, and rising EBIT, all contributing to stronger ROCE and ROE — a sign that telecom companies are deploying capital more rationally to drive profitability and long-term value. However, the decline in revenue remains a concern and should be closely monitored. Regionally, MEA, Europe, and APAC are projected to see double-digit growth in ROCE based on the current trend.

While flat revenue signals weak top-line growth, rising profitability metrics such as EBIT margin, ROCE, and FCH indicate that telcos are improving efficiency and managing costs effectively. Though this reflects strong operational discipline, it highlights growing reliance on internal efficiencies rather than market-driven growth.

Managing debt while navigating flat revenues

Key solvency metrics (Figure 9), net debt-to-EBITDA (leverage ratio) and debt-to-equity, show that while many telecom companies have stabilized their debt levels, regional disparities are emerging.

Figure 8. Increase in ROCE indicates better profitability

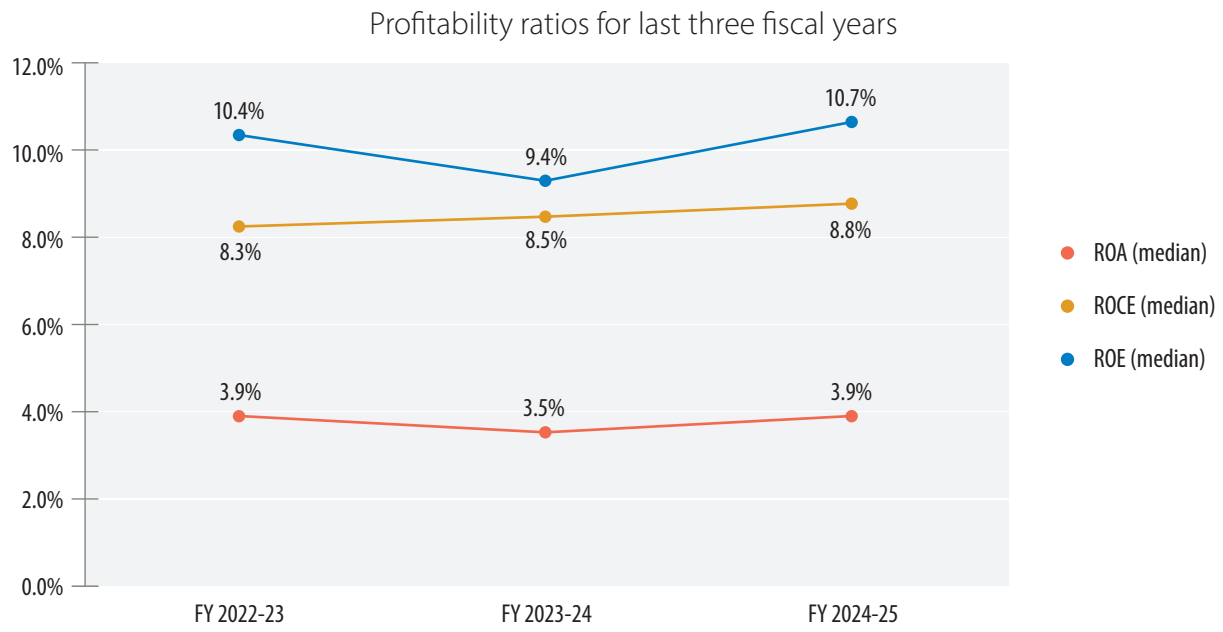

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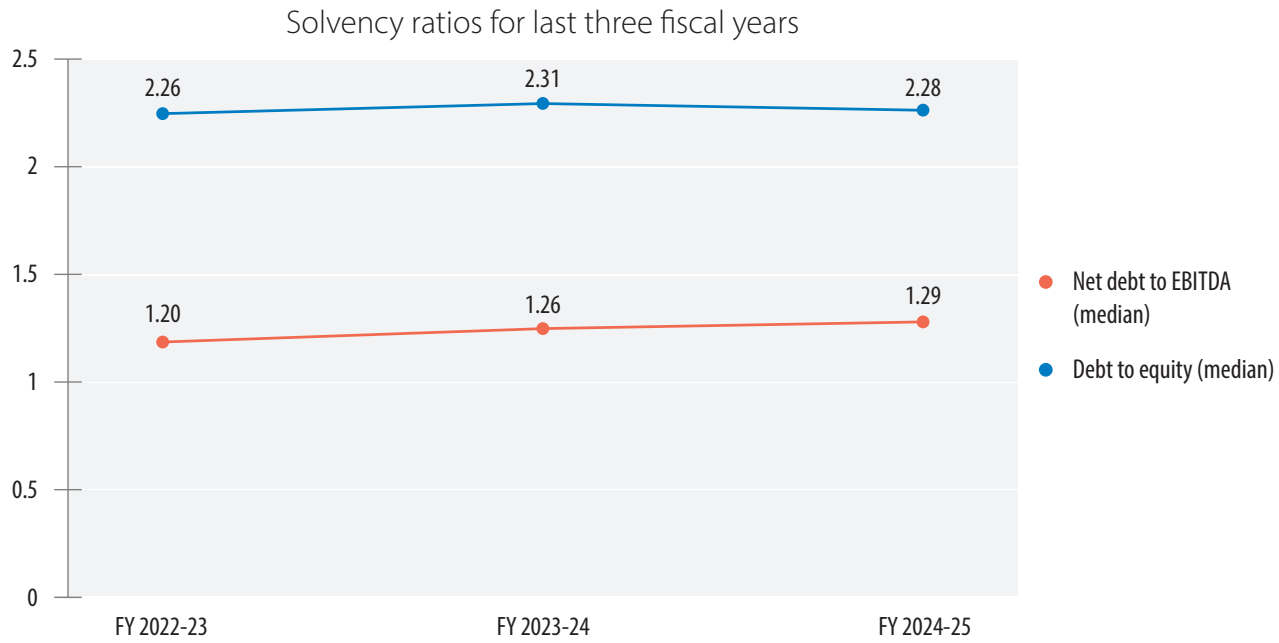
Figure 9. Rising leverage ratios indicate increased debt reliance



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Leverage ratios have risen notably in North America, Latin America, and MEA, suggesting greater reliance on debt to fund expansion or manage costs. In contrast, Europe and APAC have seen smaller increases, with some operators shifting toward equity funding to manage balance sheet risk. This trend is especially relevant in Europe, where falling revenues have made debt servicing more sensitive to earnings volatility.

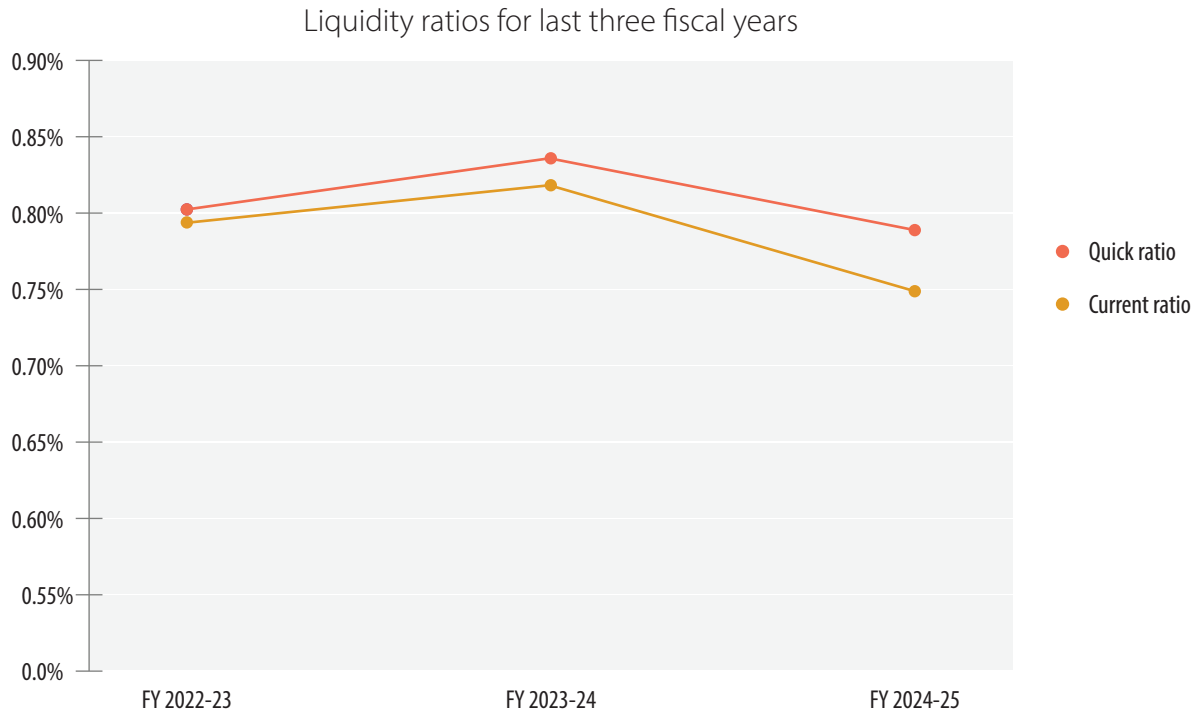
These patterns signal that telecoms are under pressure to finance infrastructure upgrades and digital transformation while maintaining investor confidence. In regions with rising leverage, the focus will likely shift to tighter financial controls and selective investment.

Where equity financing is gaining ground, we could see more mergers, asset sales, or public offerings as companies look to strengthen their capital structure without overleveraging and avoiding delinquency.

Liquidity

Liquidity ratios (Figure 10) assess a company's ability to meet short-term obligations using its liquid assets, reflecting its cash flow health. This analysis focuses on the current ratio, which measures the ability to cover short-term liabilities with current assets, and the quick ratio or acid-test ratio, which excludes inventory, to assess debt-paying capacity using the most liquid assets.

Figure 10. Falling quick ratio signals liquidity stress in telecom



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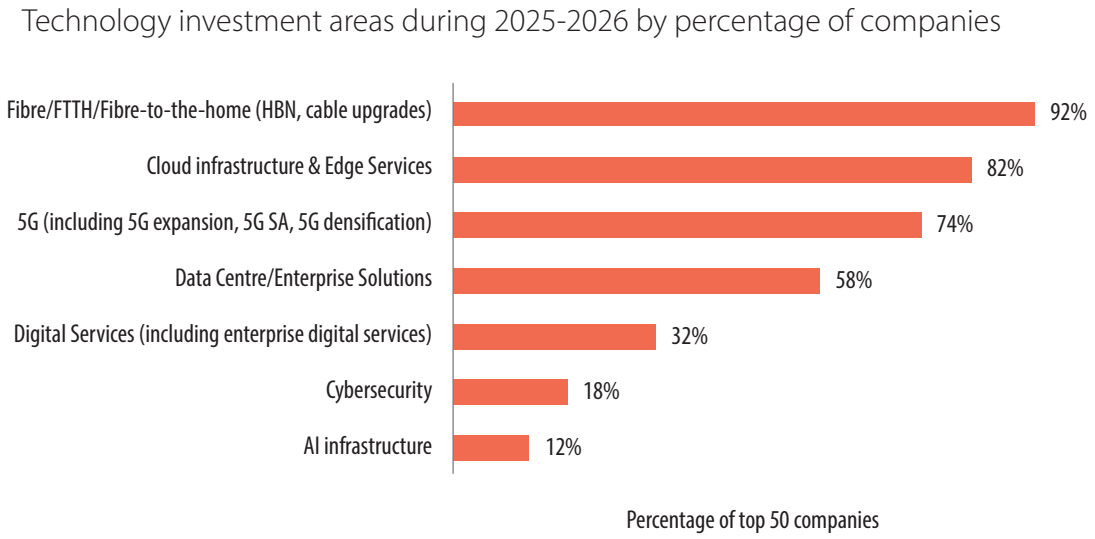
Recent data shows a decline in both ratios in the last fiscal year (Figure 8), with the quick ratio dropping over 7%. This suggests companies struggle to meet debt obligations with available cash, highlighting weakening cash receivables or equivalents. If this trend continues, companies could face increased financial stress, limiting their ability to invest or respond to unexpected expenses, which could impact overall operational stability. Latin America is the only region to show an improvement in the quick ratio compared to the previous year, driven by telecom carriers' focus on cost control, disciplined pricing, and enhanced cash flow management. This is further supported by increased adoption of fiber and rising demand for mobile services amid expanding 5G coverage.

Technology investment areas

The telecom sector is expected to continue prioritizing investments in fiber and cloud/edge infrastructure. An analysis of annual reports (Figure 11) from the top 50 telecom companies reveals that fiber and fiber to the home (FTTH) rollout and upgrades remain the most common CapEx focus, followed by cloud, edge computing, and 5G infrastructure. Notably, one in five companies is also investing in cybersecurity, particularly in the APAC region, where cybersecurity and AI are increasingly cited as strategic priorities. For instance, NTT Data plans to invest approximately $3 billion to meet growing AI demand.

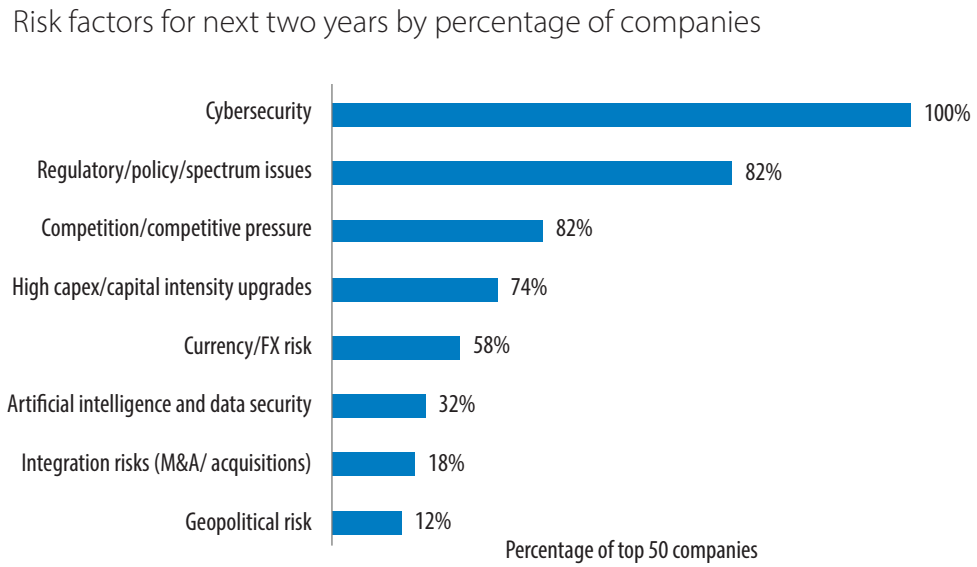
Figure 11. Fiber/FTTH remains the key investment area for telecom



N = 49, where N represents the number of telecom companies, analysed using their latest annual reports, across the globe having an annual revenue of more than $4 billion, worldwide.

Source: Infosys Knowledge Institute

Figure 12. Cybersecurity is the biggest risk in the next two years



N = 49, where N represents the number of telecom companies analysed using their latest annual reports having an annual revenue of more than $4 billion, worldwide.

Source: Infosys Knowledge Institute

Risk areas

Company reports also highlight key risks that could impede the telecom sector's growth. Cybersecurity is the most cited concern, with nearly all companies pointing to the rising AI-driven cyberattacks (Figure 12). In addition, regulatory and policy uncertainty, especially in volatile geopolitical environments, is another major risk, followed by increasing competitive pressure from industry peers.

STRATEGIC IMPERATIVES

With revenues declining and data demand surging, telecom operators must expand their offerings and explore new connectivity options like satellite internet. As AI and emerging technologies reshape the industry, telecoms need focused priorities to drive growth and modernization.

Accelerate cloud-native and AI-driven transformation: Telecom operators must move Ttoward cloud-native architectures and integrate AI across networks and services. This shift improves agility, reduces costs, and accelerates time-to-market for new offerings. Embedding AI enables smarter automation, predictive maintenance, and personalized customer experiences.

Invest in quantum-ready infrastructure: Preparing networks for quantum technologies is crucial to unlocking ultra-secure communications and next-generation computing. Operators should begin upgrading fiber and edge infrastructure to support quantum key distribution and entanglement-based services.

Expand satellite connectivity: With many applications at the intersection of internet of things and satellite, such as remote infrastructure monitoring, smart grid management in hard-to-reach areas, and rural public service delivery, it is smart for telecom operators to build readiness, even if only through targeted partnerships and pilot programs.

Strengthen financial discipline amid flat revenues: With revenues plateauing, telcos need to focus on cost optimization, capital

efficiency, and careful debt management. Improving operational efficiency through automation and workforce restructuring is key to maintaining profitability. Disciplined financial management will support sustainable investments in growth areas.

Prioritize cybersecurity and regulatory compliance: Rising AI-powered cyberthreats demand robust security investments to protect networks and data. Telecoms must also navigate complex, evolving regulations around data privacy and sovereignty. Building resilient, compliant networks will enhance trust and enable long-term partnerships with enterprises and governments.

KEY TAKEAWAYS

Revenue challenges and growth opportunities: Global telecom revenue growth has plateaued, particularly in mature markets like North America and Europe. However, high-growth regions such as APAC offer opportunities driven by population expansion and rapid 5G adoption, making these markets central to future value creation.

Technology as a growth driver: Telecom operators are accelerating cloud-native transformations and AI integration to improve agility, reduce costs, and deliver personalized services. Investments in emerging technologies like quantum networks, satellite internet, and edge computing are critical to support new applications and expand connectivity in underserved areas.

Financial discipline amid flat revenues: With revenues largely flat, telecom companies are prioritizing cost optimization, capital efficiency, and workforce restructuring to maintain profitability. Improved operational efficiency and disciplined financial management are helping operators sustain investments despite financial pressures.

Rising cybersecurity and regulatory challenges: AI-driven cyberthreats are increasing, making cybersecurity a top risk for the industry. Additionally, evolving regulations around data sovereignty and privacy require telcos to build compliant, secure networks to maintain trust and meet local regulatory requirements.

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