Independent market research and competitive analysis of next-generation business and technology solutions for service providers and vendors

HEAVY READING
WHITE PAPER

AI in Telecom:
Who Leads the Transformation?

A Heavy Reading white paper produced for Google Cloud, VIAVI, and VeloCloud by Broadcom

AUTHOR: JENNIFER P. CLARK, PRINCIPAL ANALYST, HEAVY READING

INTRODUCTION

Heavy Reading conducted a survey at the end of 2024, taking the pulse of where communications service providers (CSPs) are in planning and adopting artificial intelligence (AI) and generative AI (GenAI). The survey pulled in 116 responses from global CSPs. This report presents the highlights of the survey. Heavy Reading looks at where the CSPs are today in their efforts to leverage AI throughout the organization, where they expect to be two years from now, where they think the impact of AI will be greatest, and where barriers to AI adoption will be most keenly felt.

Heavy Reading sought to answer questions such as the following:

- Will CSPs compete more effectively by leveraging new technologies, such as AI-powered analytics, automation, and predictive models?
- Can AI enable them to innovate within and adapt to the rapidly evolving telecommunications landscape as 5G gradually moves to 6G?
- How is AI creating opportunities at the network edge and how is it, at the same time, stressing edge infrastructure?
- Where are CSPs placing their focus on AI: operational efficiencies or new revenue streams?
- How is the rapid evolution of GenAI affecting the automation and AI strategies of the CSPs?

Heavy Reading also investigates the CSPs' current attitude toward AI: Do they perceive themselves as leaders in AI adoption or not so much? Today, the transformative possibilities of AI continue to multiply. The progression (or regression) of the CSPs will largely rest on how effectively they are able to harness AI across their organization. Keeping pace with this rapidly changing technology will continue to challenge the CSPs as the AI landscape develops with the emergence of new foundational models, such as DeepSeek, and targeted agentic AI. This survey takes a snapshot of where the CSPs are today with AI and how they are defining the partnerships, technologies, and strategic initiatives that will enable them to succeed in 2025 and beyond.

KEY FINDINGS

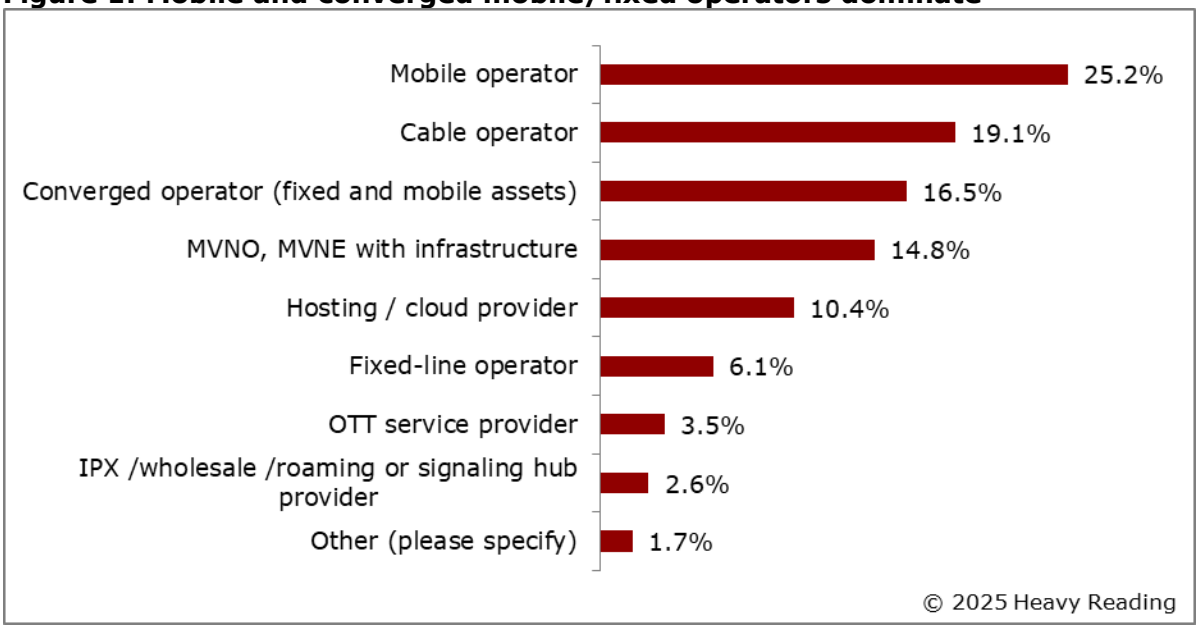
Heavy Reading surveyed CSPs on their adoption of AI and GenAI. The 116 responses gathered from global service providers are analyzed in this report. The following are the key takeaways:

- As of the close of 2024, many CSPs were still on the sidelines of AI deployment. 44% of respondents are still investigating the technology and evaluating potential use cases or are preparing to dip their toes in the water with their first pilot.
- Respondents anticipate that AI will play a key role across several CSP operational domains over the next three years, with an emphasis on network operations. Feedback also shows that the shift from manual or siloed network operations (NetOps) to fully automated, cross-domain operations powered by AI for operations (AIOps) is a priority as well.
- AI is also changing what enterprise users are looking for from their CSPs. Respondents ranked API integration first, which was somewhat of a surprise. Data sciences and ML tied for second place. These are topics that are top of mind with CSPs as they work to break down data silos and develop or purchase AI foundational models, large language models, small language models, and agentic AI solutions.
- AI is poised to significantly enhance the performance monitoring and assurance capabilities of the CSPs. Survey responses show that "network performance QoS KPIs (availability, latency throughput)" stand to benefit the most.
- Survey respondents rank security as their top concern in adopting AI, followed by the lack of the proper skill sets and then data availability. Improved security, however, also emerges in the survey as a top beneficiary of AI. Notably, "lack of AI in-house expertise" is given as the most dominant reason that respondents do not perceive their organization as a leader in AI among fellow CSPs.
- Survey respondents see customer experience as the area that will benefit most from AI from the perspective of improved efficiency and operational cost. This area will benefit from the use of new AI-driven chatbots and virtual assistants, along with the ability to analyze customer interactions to gauge sentiment and predict the need for escalation or more personalized attention.

SURVEY DEMOGRAPHICS

Mobile and converged operators made up the largest segment of the survey respondent pool, accounting for 42% of overall responses (see **Figure 1**). Cable and fixed line operators made up another 25%. Mobile virtual network operators (MVNOs) and mobile virtual network enablers (MVNEs) with infrastructure contributed 15% of respondents. Cloud and hosting providers are growing as a service provider segment in Heavy Reading surveys, and they accounted for 10% of respondents in this survey. The remaining 7%-plus of respondents included over-the-top (OTT) service providers and IPX/wholesale/roaming or signaling hub providers.

Figure 1: Mobile and converged mobile/fixed operators dominate

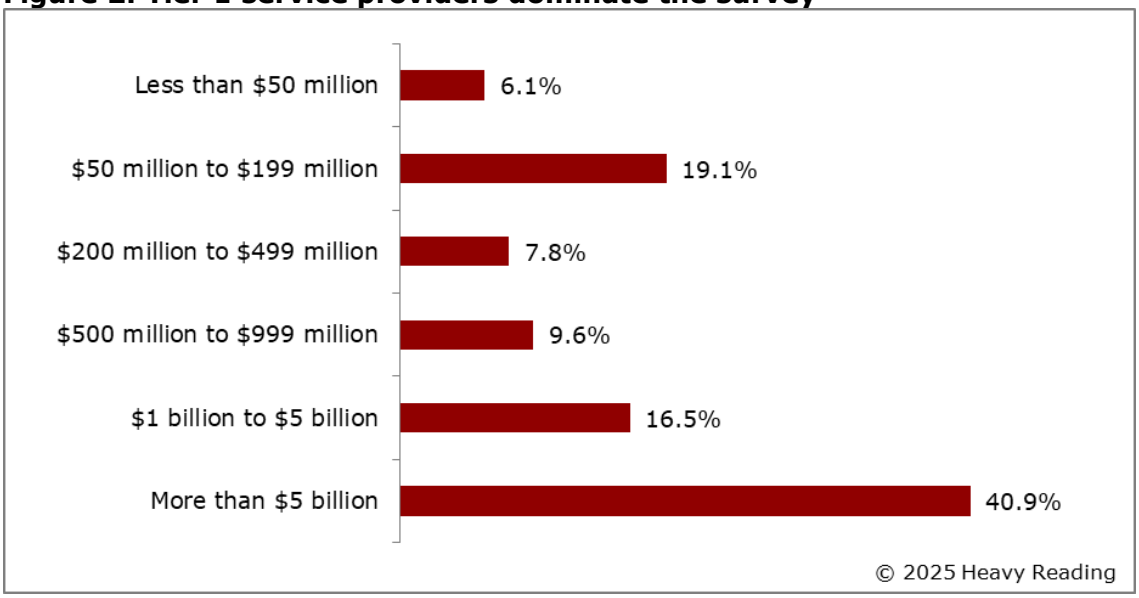


Note: Numbers in figures throughout this report may not total 100 due to rounding.
Q: What type of service provider do you work for? (n=115)
Source: Heavy Reading, 2025

Among the survey respondents, 57% represented large CSPs with annual revenue of more than $1bn (see **Figure 2**). CSPs with revenue of between $200m and $999m made up 17.4% of the respondent pool, and those with annual revenue of less than $200m made up the remaining 25%. Revenue dictates the capital budget available for funding the transition to 5G, edge computing, and cloud native networking.

Heavy Reading research shows that over the past decade, carriers have dedicated, on average, 17–18% of their revenue to capex, a percentage they are working to lower with a transition to commercial off-the-shelf (COTS) servers and virtualized and containerized network functions. The widespread adoption of AI-enabled infrastructure may help to lower operational costs with predictive maintenance and zero-touch management. However, the flip side of the coin shows that compute- and storage-intensive AI applications—either new AI-enabled CSP services or enterprise applications supported by the CSP—will drive both expansion and cost throughout the network, particularly at the network edge.

Figure 2: Tier 1 service providers dominate the survey

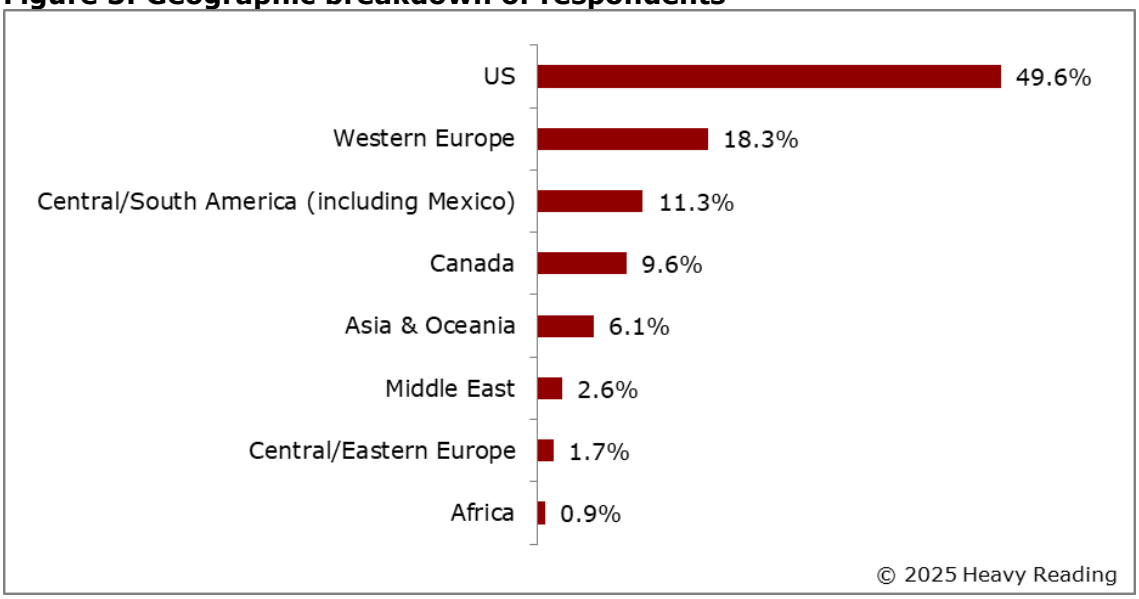


Q: What is your company's approximate annual revenue (USD)? (n=115)
Source: Heavy Reading, 2025

Regional breakdown

Almost half of the survey respondents were from the US. Eastern and Western Europe, together with the Middle East and Africa (EMEA), accounted for about another quarter of respondents. Canada, Central America, and South America made up 21% of respondents. The remaining 6% of the respondents were from the Asia & Oceania region.

Figure 3: Geographic breakdown of respondents

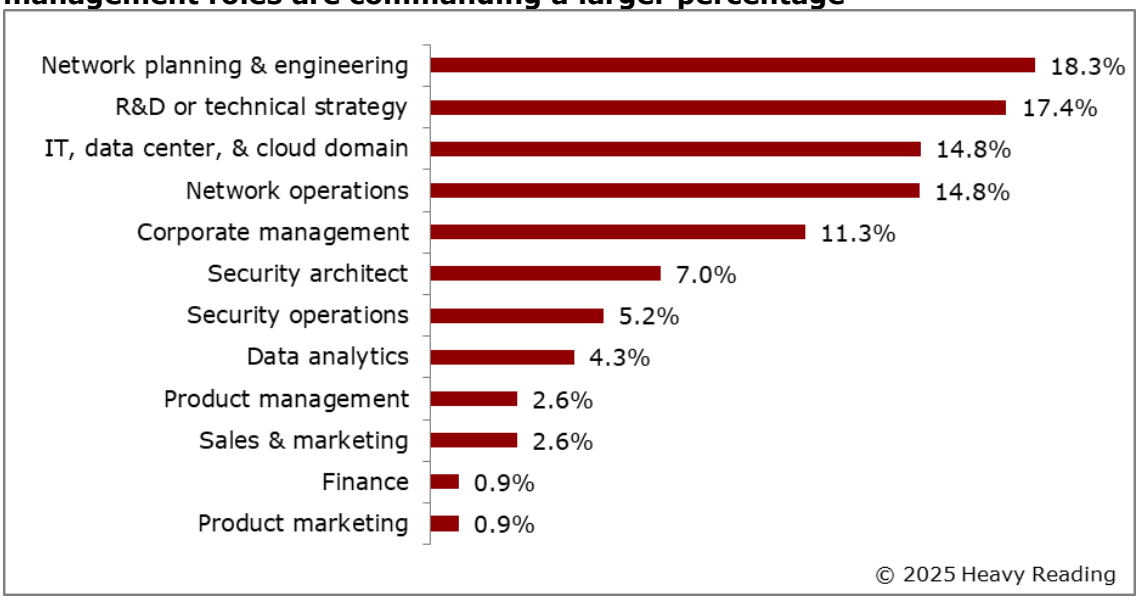


Q: In what region is your organization headquartered? (n=115)
Source: Heavy Reading, 2025

Job function

In most Heavy Reading surveys, more than half of respondents are in technical networking roles: planning and engineering, R&D, and NetOps. In this telco AI survey, the technical networking role percentage meets this bar at 50.5%. Meanwhile, IT, data center, & cloud domain job functions are taking a larger role—in this case, 14.8%. Newer roles, such as data analytics (4.3%), are gaining more visibility. Management, finance, and marketing (including product management and product marketing) accounted for 18.3%. Security operations and security architect contributed a healthy 12.2% to the mix.

Figure 4: Technical networking roles still dominate the survey, but IT and management roles are commanding a larger percentage



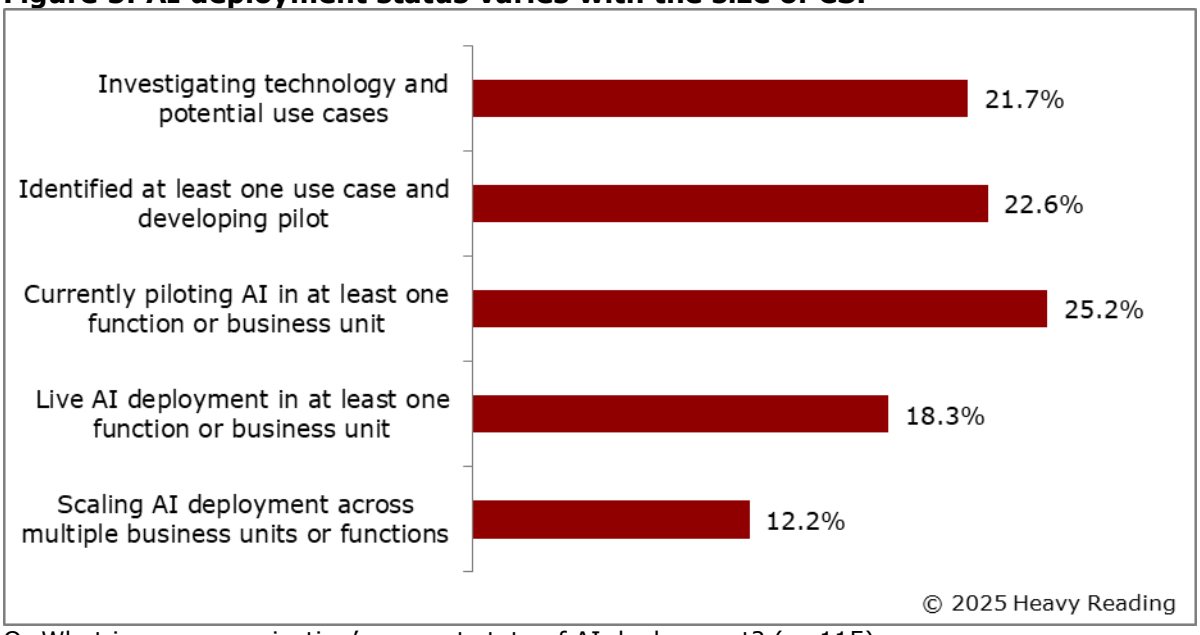
Q: What is your primary job function? (n=115)
Source: Heavy Reading, 2025

PLOTTING AN AI COURSE

As of the close of 2024, many CSPs were still on the sidelines of AI deployment. Almost half of Heavy Reading's respondents, 44%, are still investigating the technology and evaluating potential use cases or are preparing to dip their toes in the water with their first pilot (see **Figure 5**). A quarter have at least one live pilot. The remainder, 30%-plus, have one or more live deployments.

Examining the data by size of organization reveals, not too surprisingly, that only 24% of CSPs with revenue of less than $1bn are in live deployment compared to the significantly larger percentage of 38% of CSPs with more than $5bn in revenue. Is the need for AI more pressing in larger carriers? Or do they have a deeper pool of talent or, perhaps, fuller coffers for funding AI deployment? This survey discloses the answer to these questions as we delve further into the results.

Figure 5: AI deployment status varies with the size of CSP



Q: What is your organization's current state of AI deployment? (n=115)
Source: Heavy Reading, 2025

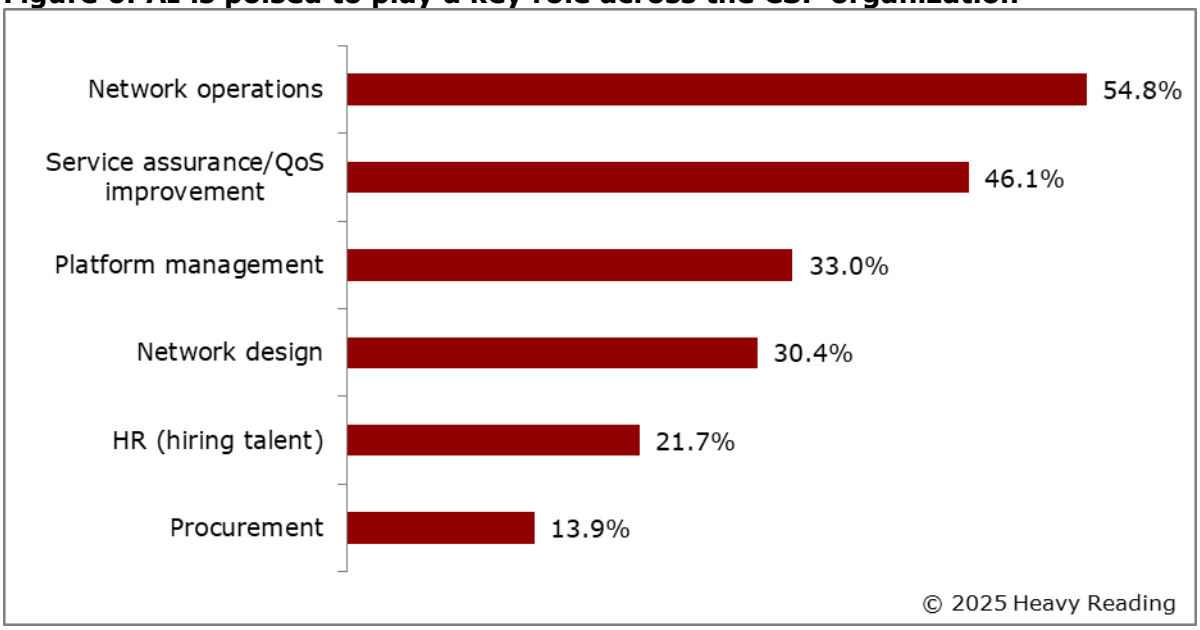
Where will AI have the most impact among the CSPs? Survey respondents expect AI to play a key role across several CSP operational domains over the next three years (see **Figure 6**). NetOps is expected to lead the way as AI becomes increasingly used for real-time network monitoring, predictive maintenance, and dynamic network optimization. AI-powered solutions will help operators automatically detect and resolve network issues, optimize traffic flow, and predict network failures before they occur.

The NetOps domain receives an even higher score when looking exclusively at converged operators, where it captured 79% of survey respondents. Service assurance is the second most popular domain identified by respondents. The percentage that selected this domain jumps to 63% when looking only at those survey respondents that are furthest along with incorporating AI into their organization.

Hiring talent and procurement received the fewest number of votes in Heavy Reading's survey, but these areas will undoubtedly also benefit as they increasingly leverage automation and begin to incorporate AI into their processes. In HR, AI tools can analyze vast amounts of resumes and applications quickly and identify candidates with the skills and qualifications needed. In procurement, AI can improve a wide variety of tasks:

- Supplier selection and management
- Forecasting and inventory management
- Automating purchase orders and invoices
- Market and price trend analysis

Figure 6: AI is poised to play a key role across the CSP organization



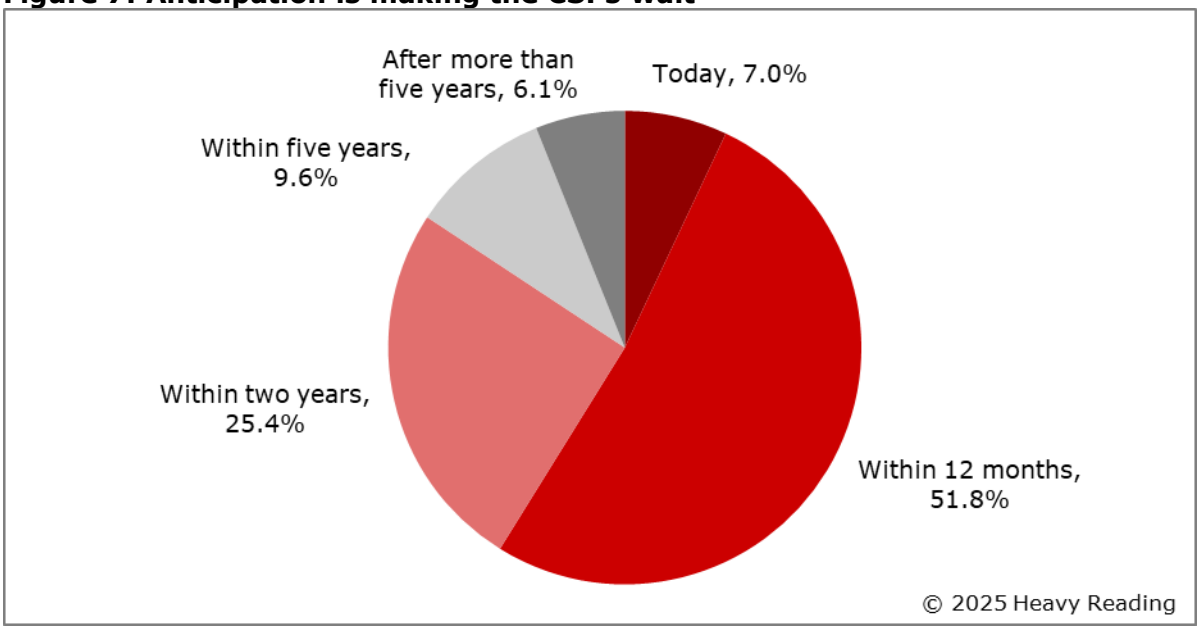
Q: In which operational domain(s) do you expect AI to play a major role over the next three years? (Select top two) (n=115)
Source: Heavy Reading, 2025

The maturity of AI/ML solutions like digital twins and zero-touch NetOps (ZTO) is advancing, but how quickly? The timeline for full maturity depends on several factors, including technology development, pace of adoption, regulatory and standardization factors, and real-world testing. Few of Heavy Reading's survey respondents, just 7%, believe these technologies are fully mature today, but 52% anticipate that they will be in 12 months (see **Figure 7**). Only 16% believe that it will be more than two years before these technologies reach maturity.

Some CSPs have already begun deploying digital twin technologies for network management. However, it will take time for these systems to become fully autonomous and capable of handling complex, real-time decisions without significant human intervention. Progress depends on improving data accuracy, integration with other network management systems, and fine-tuning AI's predictive capabilities.

ZTO is already being deployed, too, particularly in 5G networks, where automation is crucial for handling the complexity of virtualized and disaggregated infrastructures. However, full end-to-end automation across multiple network layers (including transport, core, and access networks) and diverse environments (such as hybrid or multicloud environments) is a tall order. Survey respondents appear confident that real-time decision-making, policy enforcement, and the management of security risks, all required in ZTO, will (for the most part) mature within the next two years.

Figure 7: Anticipation is making the CSPs wait



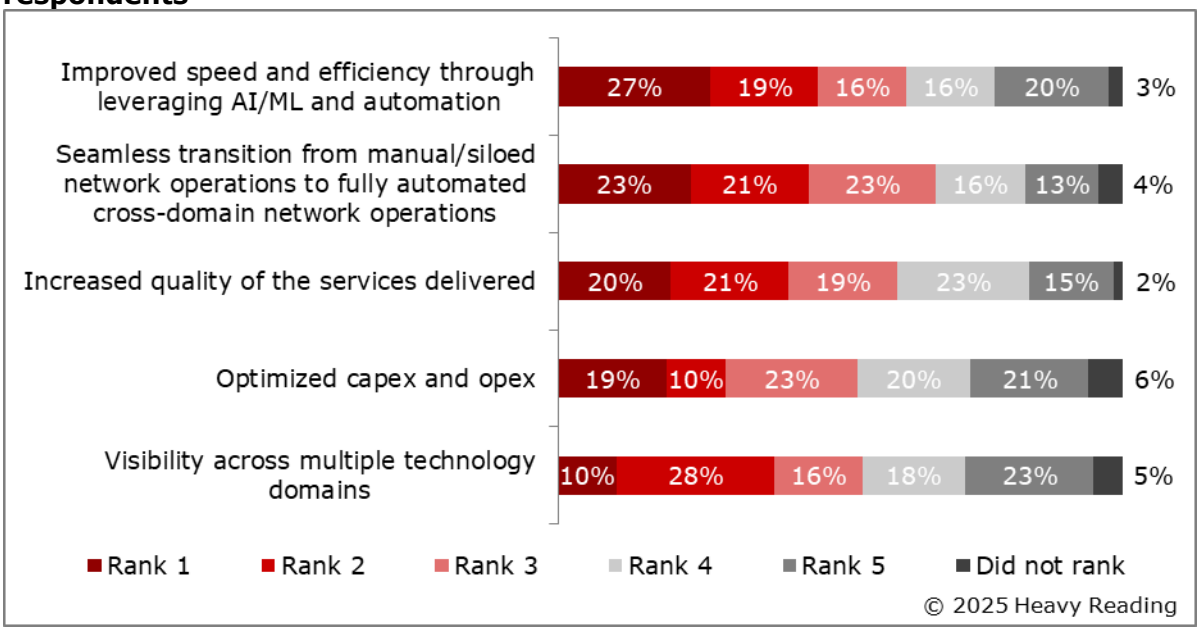
Q: When will AI/ML solutions (like digital twins and zero-touch network operations) be mature enough to enable full automation within your organization? (n=114)
Source: Heavy Reading, 2025

Survey responses identify the operational domains best positioned to benefit from AI, with NetOps, or AIOps, emerging as the most compelling area. However, AIOps covers a lot of territory. Where are CSPs actually focusing their efforts in AIOps implementation (see **Figure 8**)? Putting aside opex/capex for the moment, responses ranking the perceived benefits of AIOps are tightly clustered. The first and second ranked benefits, combined, range between 38% and 46% of respondents, but the benefit of improved speed and efficiency does come out on top. By leveraging a combination of AI, ML, and automation, telcos are in a position to dramatically improve speed and efficiency across multiple functional domains of their operations. From automating routine tasks to optimizing network performance, predictive maintenance, and customer service, these technologies can improve service reliability, reduce downtime, enhance security, and accelerate innovation.

Feedback from survey respondents also shows that the shift from manual or siloed NetOps to fully automated, cross-domain operations powered by AIOps is also a priority. By breaking down operational silos, enabling end-to-end automation, and leveraging data-driven insights, AIOps improves network performance while reducing downtime and network complexity. Ultimately, AIOps helps telcos operate more efficiently, scale with greater ease, and offer superior customer experiences in a competitive, dynamic market.

"Optimized capex and opex" exhibits the lowest percentage of first plus second ranked benefits. However, cost saving is a natural outcome of all the benefits. AIOps results in operational cost reduction through reduced manual intervention in network monitoring, maintenance, and troubleshooting. It also leads to cost savings by optimizing resource usage, reducing energy consumption, and identifying and limiting unnecessary hardware costs.

Figure 8: Operational domains stand to benefit most from AI, according to respondents



Q: Which of the following benefits is the most important to your organization when implementing AIOps? (Rank in order, where 1 = most important and 5 = least important) (n=115)
Source: Heavy Reading, 2025

Performance monitoring and assurance

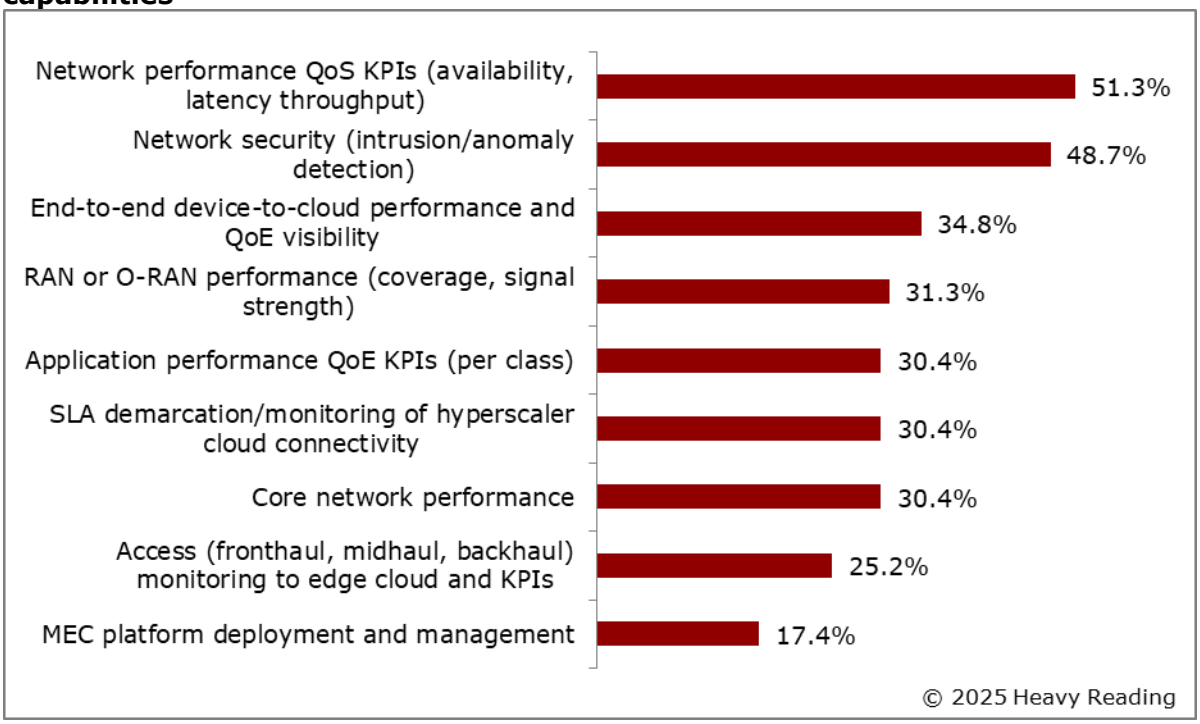
AI is poised to significantly enhance the performance monitoring and assurance capabilities of the CSPs. Survey responses show that "Network performance QoS KPIs (availability, latency throughput)" stand to benefit the most (see **Figure 9**). AI improves real-time performance monitoring, enabling CSPs to always keep an eye on overall network performance, latency, throughput, and signal quality. AI-enhanced performance monitoring and assurance help out the CSPs by identifying areas where performance is suboptimal and automatically adjusting settings to improve user experience. It also enables dynamic QoS management by optimizing network parameters based on real-time user demands, ensuring that high priority traffic (e.g., emergency services or business-critical apps) gets the best possible quality while less critical services are deprioritized.

Not too surprisingly, network security is the second most compelling network performance benefit of AI, according to respondents. AI-enhanced security monitoring improves threat detection and mitigation by identifying unusual patterns in network traffic that may indicate a security threat, such as malware or hacking attempts, and taking action to prevent breaches. It can also enable automated security response, allowing telcos to react in real time to emerging threats by automating incident response, adjusting network settings to mitigate risks, or isolating affected components.

Most of the remaining capabilities are clustered at between 30% and 35% of survey respondents. However, access and multi-access edge computing, or MEC (which can be considered an aspect of the access network), are at the bottom of the list, bringing in only 17% and 25% of responses. This is somewhat surprising because AI is likely to have a significant impact on edge computing in terms of both demands on the infrastructure and

enabling the hosting of enterprise AI applications. AI will enable efficient and dynamic allocation of resources, including spectrum and compute power. It will also assist in managing the complex interplay of different network slices, ensuring that different services receive the appropriate resources. Finally, AI can optimize how data is processed and stored across edge computing nodes, ensuring low latency and high speed services.

Figure 9: AI will help improve network performance monitoring and assurance capabilities



Q: Which performance monitoring/assurance capabilities within your organization will be most enhanced/enabled by AI? (Select top three) (n=115)
Source: Heavy Reading, 2025

CHANGING ENTERPRISE NEEDS

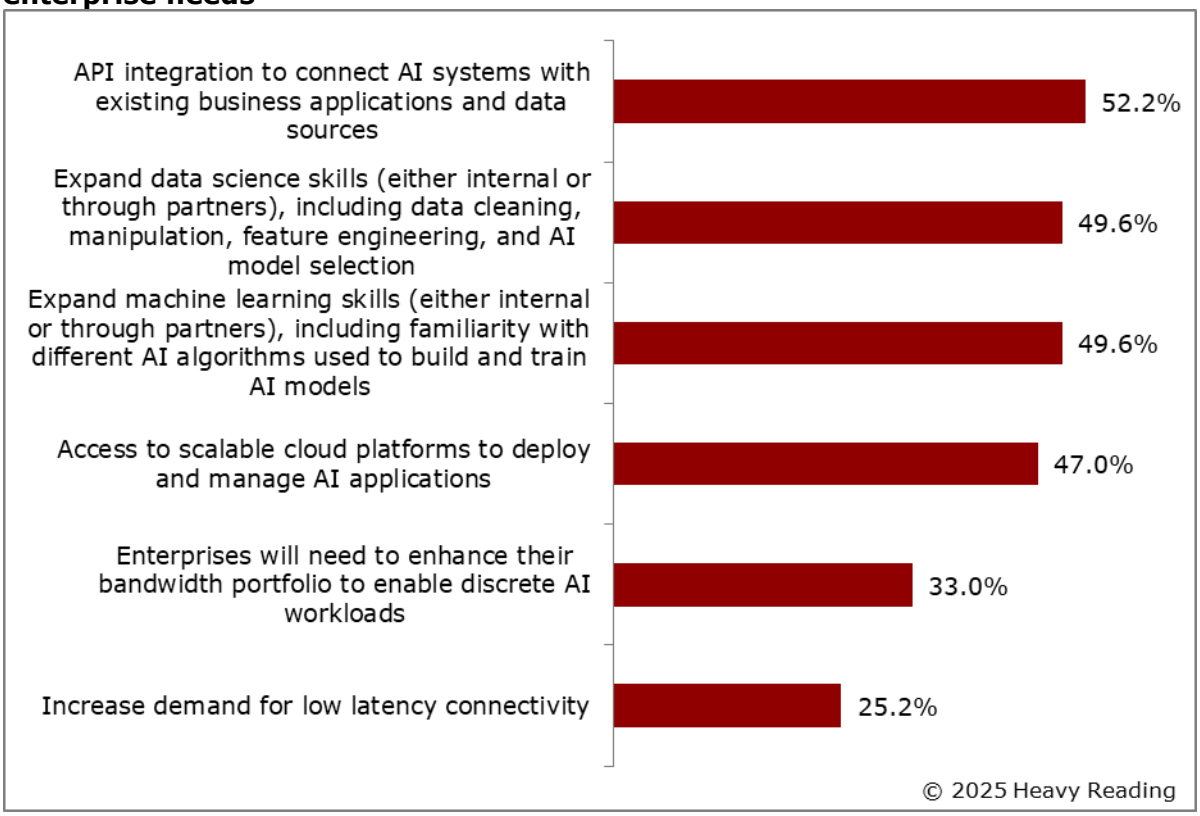
How will AI change what enterprise users are looking for from their CSPs? Heavy Reading put this question to survey respondents and was somewhat surprised with the feedback (see **Figure 10**). API integration came out on top, which was the first surprise. APIs continue to be a hot topic among CSPs, and perhaps this response should be interpreted as indicating APIs will enable CSPs, developers, and the enterprise to work together to create networked applications tailored to the end user. API integration ensures that AI can be more easily embedded within the business ecosystem, bringing together data, processes, and insights in a way that improves service creation, efficiency, and innovation.

Data sciences and ML came out neck-and-neck, with each getting the nod from just under half of respondents. These are topics that are top of mind with CSPs as they work through the complex tasks of breaking down data silos, data cleansing, and either developing or purchasing AI foundational models, large language models, small language models, and agentic AI solutions.

It is surprising that "increased demand for low latency connectivity" ranked last in terms of perceived enterprise customer needs. Industry news is awash with examples of low latency edge computing use cases from manufacturing, healthcare, logistics, etc. Looking at only converged operators, however, the percentage of respondents for low latency jumps almost 20 percentage points to 42.1%. It is similarly high among hosting/cloud providers. These carriers appear convinced that as AI enables edge computing, enterprise customers will want CSPs to offer robust and scalable solutions that integrate seamlessly with their existing infrastructure. The ability to process data at the edge, rather than sending it to centralized cloud data centers, will be crucial for maintaining performance.

Similarly, Heavy Reading believes that enterprises will need to enhance their bandwidth portfolio to support myriad discrete AI workloads. Compute and connectivity requirements of workloads will continue to splinter into myriad profiles, which will demand the dynamic allocation of resources to meet the application needs efficiently and cost-effectively.

Figure 10: Respondent opinions are divided regarding how AI is changing enterprise needs



Q: In which ways will your enterprise customers' needs change as AI increases at the edge? (Select all that apply) (n=115)
Source: Heavy Reading, 2025

Competitive differentiation among CSPs

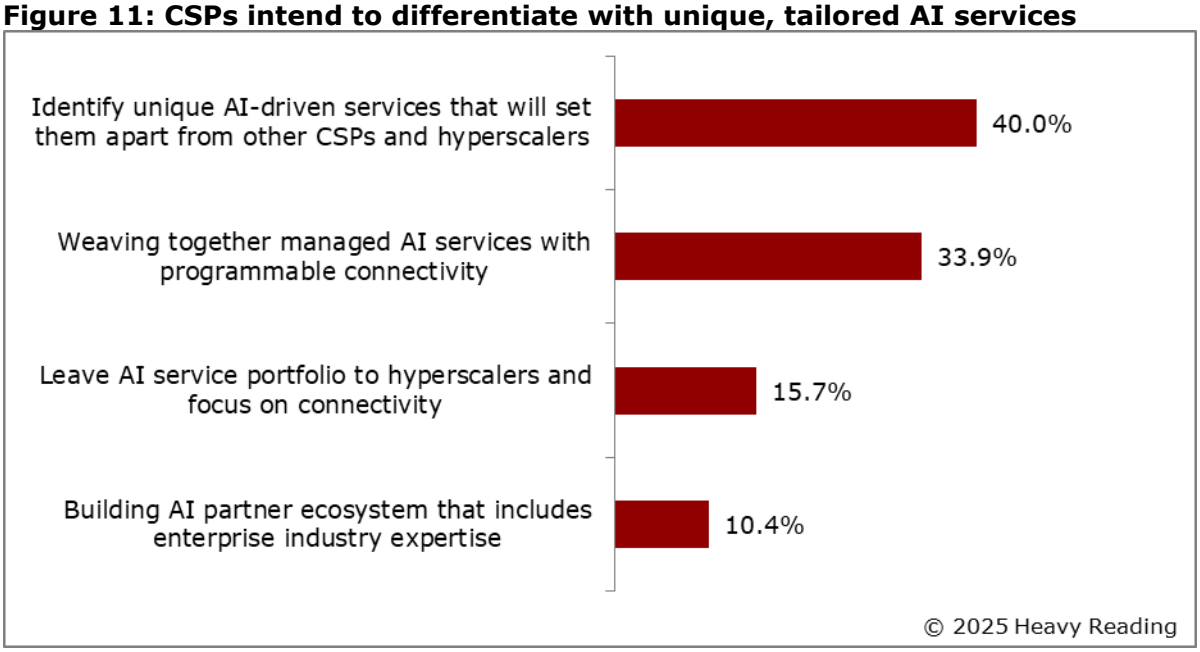
CSPs are in a position where they can leverage their network infrastructure in combination with AI to offer many services, such as edge computing, data privacy and security, network as a service (NaaS), etc. But how will they differentiate these service offerings from those of their competitors?

When Heavy Reading asked respondents this question, it was notable that "building AI partner ecosystem that includes enterprise industry expertise" came in last at only 10% of respondents. This percentage is even lower than that for "leave the AI service portfolio to the hyperscalers and focus on connectivity." Both results suggest that the CSPs may rely on a DIY strategy when it comes to offering services that incorporate vertical industry expertise to enterprise customers.

"Weaving together managed AI services with programmable connectivity," the second most popular response, translates to working with the enterprise and using APIs to create managed services. These skills are certainly within the core competency of the CSPs.

However, the leading differentiator is expected to be "identify unique AI-driven services that will set them apart from other CSPs and hyperscalers," which sounds like more of a wish than a plan. Executing this plan is very likely to pull in aspects of the other three identified differentiators: the hyperscalers, the enterprise itself, and an expanded partner ecosystem.

Figure 11: CSPs intend to differentiate with unique, tailored AI services



Q: How will CSPs primarily differentiate from their competition when it comes to enabling AI workloads? (n=115)
Source: Heavy Reading, 2025

CHALLENGES OF THE COMING AI STORM

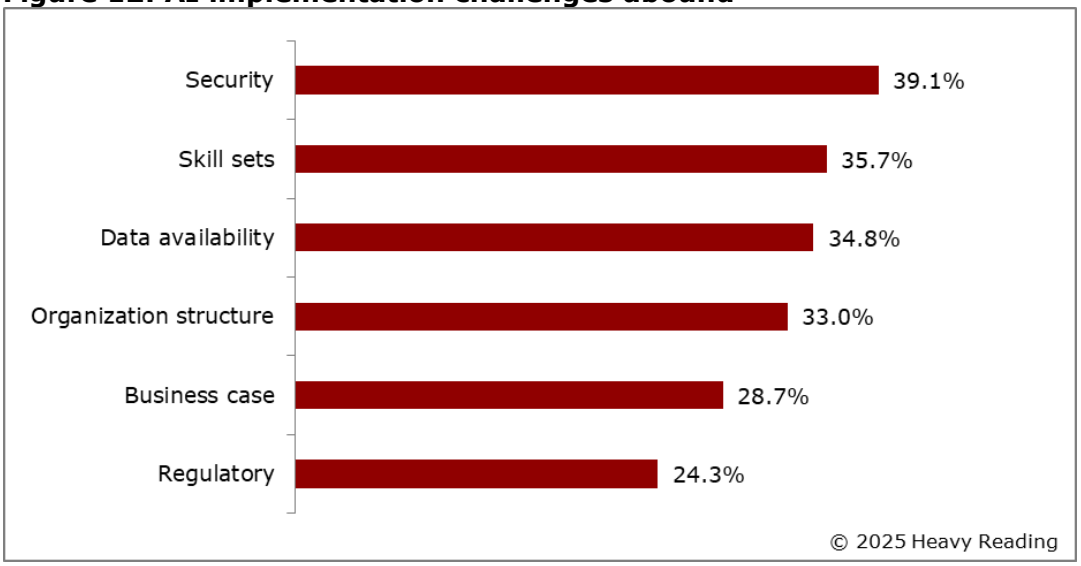
AI has the potential to revolutionize the telecommunications industry. However, successful implementation depends on overcoming many challenges (see **Figure 12**). Heavy Reading's survey respondents ranked security as their top concern. Interestingly enough, they ranked regulatory as the least pressing concern—and the two are tightly linked. Ensuring AI systems are secure against cyberthreats and comply with privacy regulations (GDPR, HIPPA, CCPA, etc.) is a complex task. CSPs handle sensitive customer data (e.g., personal, billing, and usage data). Any data breach can result in both a loss of customer trust and regulatory fines if AI systems are not properly secured and privacy practices are not followed.

Lack of the proper skill sets is the second most highly ranked concern. Among the largest carriers and converged operators, this challenge pulled in an even higher percentage of responses. AI development requires highly specialized skills, including data science, ML, and advanced analytics. These skills are in short supply, and competition for such talent is stiff, making it difficult for telcos to hire the right people or train existing staff to master AI-driven processes. This is a key reason that CSPs are expanding their ecosystem to include hyperscalers, integrators, cloud specialists, and AI startups: to fill in these skills gaps.

Data availability ranks closely behind skill sets. AI systems are as good as the data that drives them. However, CSPs deal with large volumes of unstructured, siloed, or inconsistent data from various sources (e.g., network data, customer interaction data, billing data, etc.). Scrubbing and consolidating this data is a time-consuming and arduous task. Poor data quality or integration challenges will lead to inaccurate AI predictions or inefficiencies, undermining the effectiveness of AI systems.

Organization structure falls into the bottom half of the list of concerns. It is, however, even less of a concern (21%) for both converged operators and for those with established AI deployments.

Figure 12: AI implementation challenges abound



Q: What are the most significant challenges in your organization's implementation of AI? (Select up to two) (n=115)
Source: Heavy Reading, 2025

AI at the edge

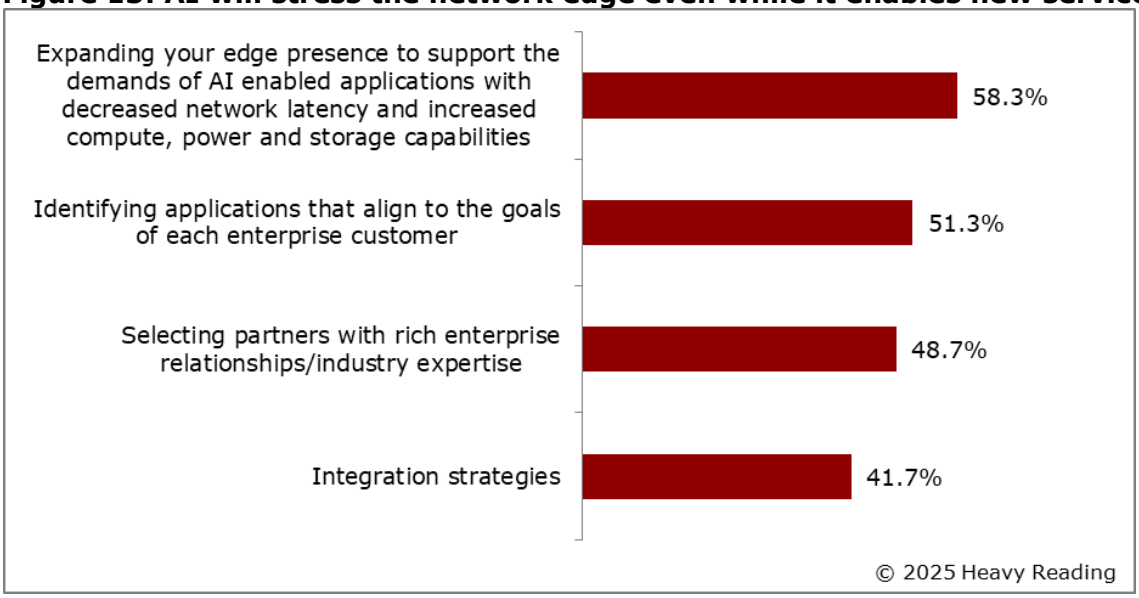
CSPs must address a combination of technological, operational, and strategic issues as the demand for more localized and real-time AI capabilities grows. They face numerous hurdles in building edge ecosystems for AI-driven vertical applications. Survey respondents see the expansion of their edge presence to support decreased network latency and increased compute, power, and storage capabilities as their key concerns (see **Figure 13**). The organizations with the most mature AI deployments find this to be an even more significant obstacle (with 71% of respondents)—and for good reason. Deploying a distributed edge network that can handle AI-driven applications at scale is complex. CSPs must be able to grow their edge presence rapidly and, at the same time, improve performance and reliability, a task that is both capital and resource-intensive.

Finding applications that align with the goals of each enterprise customer received the second highest percentage of responses (51%). AI-driven services that are customized for specific industries or even specific customers will provide CSPs with the differentiation they are looking for. This means CSPs need to offer flexible and adaptable solutions that can cater to specific vertical needs. A one-size-fits-all approach will have limited success.

Third in the list of challenges is building the AI ecosystem. CSPs are looking to collaborate with stakeholders in different verticals (e.g., healthcare, automotive, and manufacturing). Each vertical has specific needs, which require tailored solutions. Managing a diverse set of partnerships and vendor relationships is a challenge in itself.

The final challenge (and only 16 percentage points behind the leading challenge) is integration strategies. As different industries adopt AI at the edge, CSPs find themselves needing to support a broad range of use cases, each with its own set of technologies, standards, and regulations. Coordinating and aligning all these moving parts can be overwhelming, which is why CSPs are looking to integrators for help.

Figure 13: AI will stress the network edge even while it enables new services

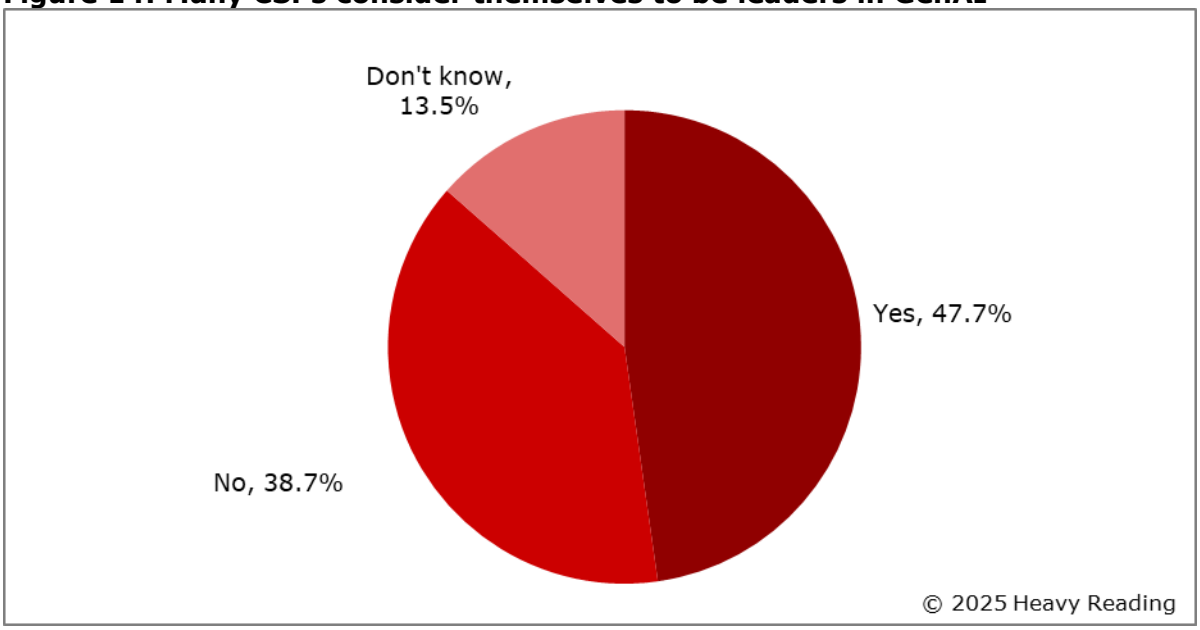


Q: Which are the main challenges of managing a growing ecosystem at the edge to supply vertical-specific AI-driven applications? (Select top two) (n=115)
Source: Heavy Reading, 2025

THE IMPACT OF GENAI

GenAI is not new—it was introduced in the 1960s with first-generation chatbots. It has evolved since then. For example, generative adversarial networks, or GANs, were introduced in 2014. However, it was the launch of ChatGPT in November 2022, less than two and a half years ago, that coaxed the telecommunications industry to shift from a focus mainly on predictive and prescriptive AI firmly into a new GenAI era. Given the relatively nascent nature of the technology, it is interesting that almost 50% of survey respondents see their organizations as leaders in GenAI (see **Figure 14**). Is this a case of wishful thinking? To delve a little deeper into this perception, Heavy Reading asked why respondents claimed leadership in GenAI or why they did not (see **Figure 15**).

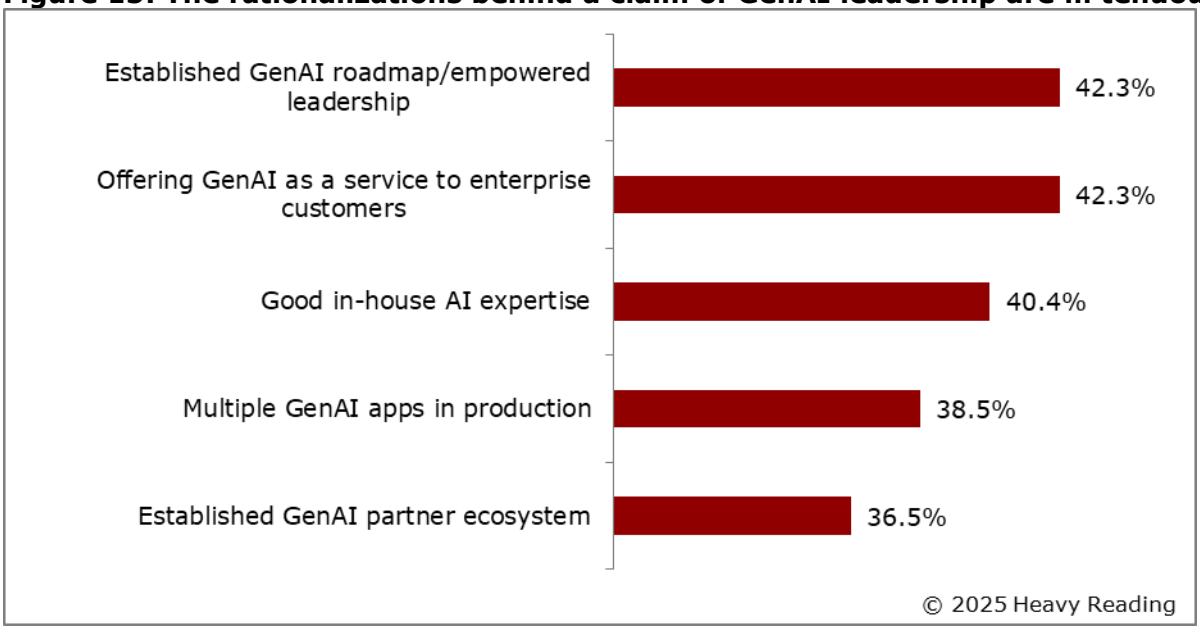
Figure 14: Many CSPs consider themselves to be leaders in GenAI



Q: Do you view your company as a leader in GenAI? (n=111)
Source: Heavy Reading, 2025

The most popular response for those that perceive themselves as leaders can be paraphrased as: "We have a plan, and we have the will" (see **Figure 15**). However, this is followed by the more concrete statement, "We are offering GenAI as a service to enterprise customers," along with "We have good in-house AI expertise." Only 6 percentage points separate the most and least popular responses. If a CSP is truly a leader in GenAI, one would expect "we have multiple GenAI apps in production" to land much higher on the list. These responses may be a case of "perception is reality," at least to Heavy Reading's respondents.

Figure 15: The rationalizations behind a claim of GenAI leadership are … tenuous



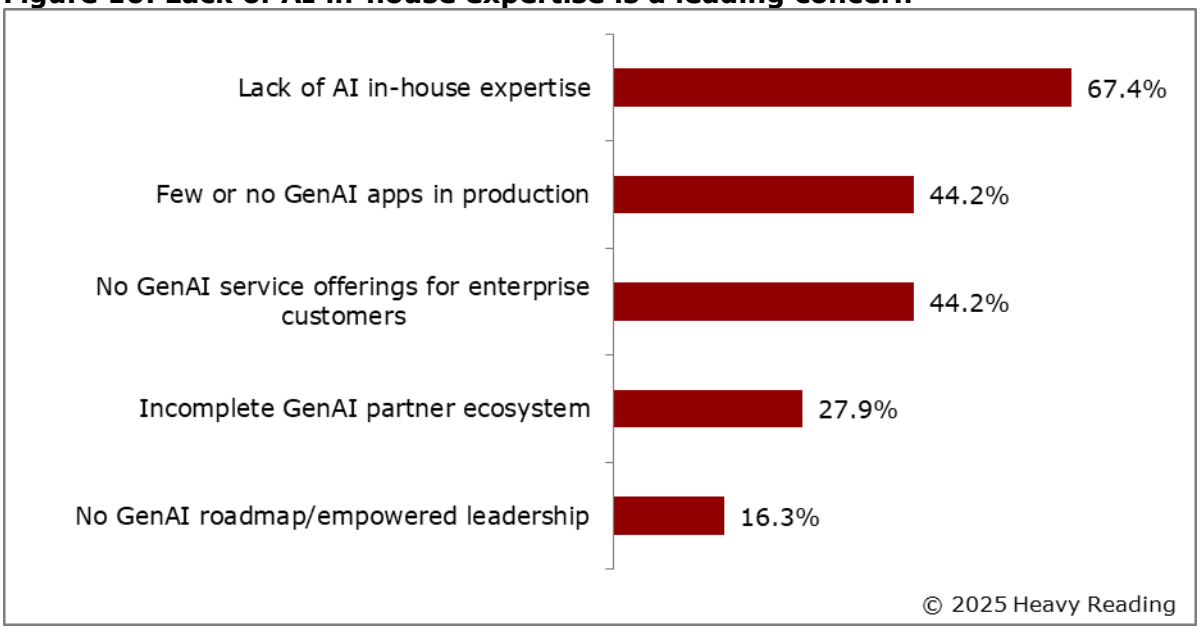
Q: Which best describes why you view your company as a leader in GenAI? (Select top two) (n=52)
Source: Heavy Reading, 2025

The flip side of the question—why you do **not** view your company as a leader in GenAI—offers a little bit better and more differentiated insight (see **Figure 16**). Lack of AI in-house expertise comes in first with 67% of responses—more than 20 percentage points higher than the second and third most popular responses. As discussed earlier in this report, the lack of skills is a persistent issue with the CSPs and one that is difficult to remediate by training existing resources or trying to hire these sought-after individuals. CSPs may be kicking the tires on GenAI and launching pilot projects to familiarize themselves with the technology. However, that is still a long way from launching proofs of concept or deploying services. Without the needed internal skills, it is difficult to understand what GenAI success looks like or how to measure its value.

The third most popular response for those that do not consider their company a leader in GenAI—no GenAI service offerings for enterprise customers—is a good barometer for the maturity of GenAI within the organization. In 2025, CSPs are beginning to move from use cases that implement GenAI for operational efficiency to ones that use the technology to create new revenue streams.

It is interesting to note that roadmap and leadership—the **leading** reason for respondents that consider themselves leaders in GenAI, is the least important concern of those that do not.

Figure 16: Lack of AI in-house expertise is a leading concern



Q: Which best describes why you do not view your company as a leader in GenAI? (Select top two) (n=43)
Source: Heavy Reading, 2025

Operational efficiency vs. new revenue streams with GenAI

As discussed, CSPs are exploring the use of GenAI to both improve operational efficiency and create new revenue streams. Where do the CSPs believe GenAI will be most helpful on both sides of those implementation scenarios?

Survey respondents see customer experience as the area that will benefit most in terms of improved efficiency and operational cost (see **Figure 17**). New AI-driven chatbots and virtual assistants can handle a wide range of customer queries, troubleshoot issues, and guide users through decision trees better and with less annoyance, leading to reduced operational costs and faster response times. GenAI can also analyze customer interactions to gauge sentiment and predict the need for escalation or more personalized attention, improving customer satisfaction and streamlining service workflows.

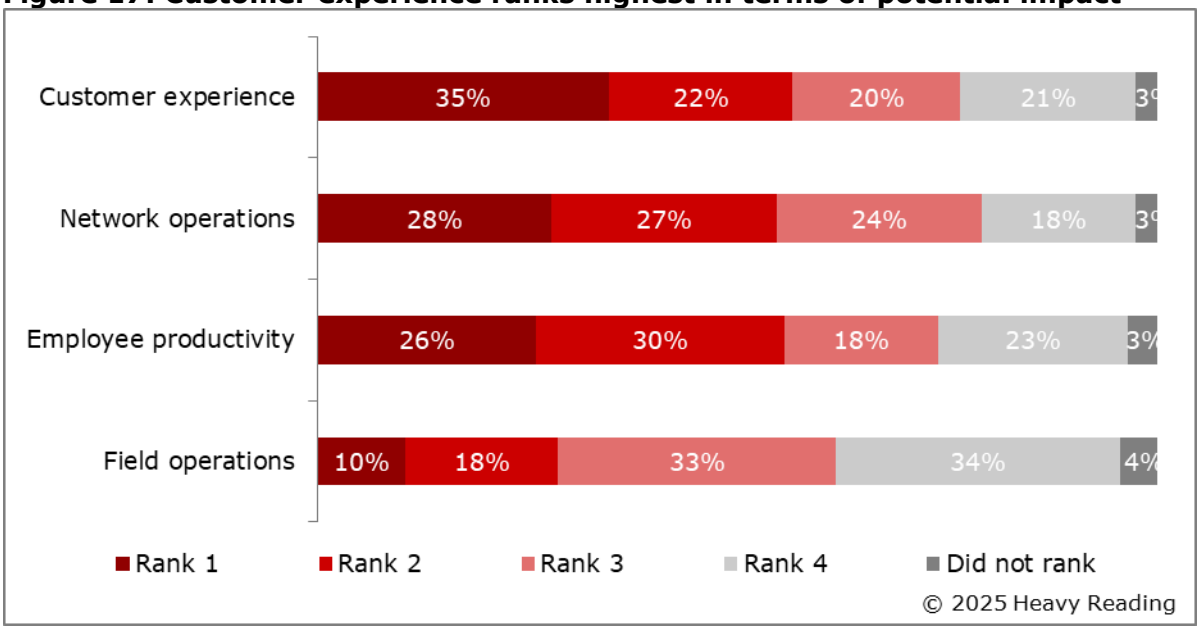
Improving NetOps efficiency was the second most popular response. With GenAI, CSPs are able to predict and prevent network failures by analyzing historical data and identifying patterns in the network's performance. This capability can reduce downtime, optimize resource allocation, and lower the costs of network repairs. It can also automate the process of configuring and optimizing network parameters to improve performance, which is particularly useful in 5G networks, where dynamic reconfiguration can be key to improving capacity and efficiency.

Additionally, GenAI has the potential to significantly enhance the productivity of CSP employees across the organization by automating repetitive tasks, providing smarter tools for decision-making, and optimizing workflows. The promise of GenAI is that it will allow employees to focus on higher value tasks and strategic initiatives, resulting in a more agile and efficient workforce capable of meeting the challenges and demands of the constantly evolving telecom industry.

Field operations was the lowest ranked response by a large margin. This is surprising since every truck roll costs the CSP $600 and up. For field technicians, AI can optimize routing and scheduling, ensuring that technicians are sent to the right locations with all the correct parts and tools, thereby improving efficiency, reducing costs, and greatly reducing the number of repeat visits.

We are already seeing examples where augmented reality (AR) glasses powered by GenAI can assist the field tech in performing installations or repairs. For example, AR could overlay digital instructions on the technician's view of a physical object, guiding them through complex setups or wiring configurations, ensuring accuracy and speed. GenAI can also facilitate assistance from expert engineers by enabling video calls to remote experts for troubleshooting guidance.

Figure 17: Customer experience ranks highest in terms of potential impact



Q: In which area(s) will GenAI have the most impact? (Rank in order, where 1 = most impact and 4 = least impact) (n=115)
Source: Heavy Reading, 2025

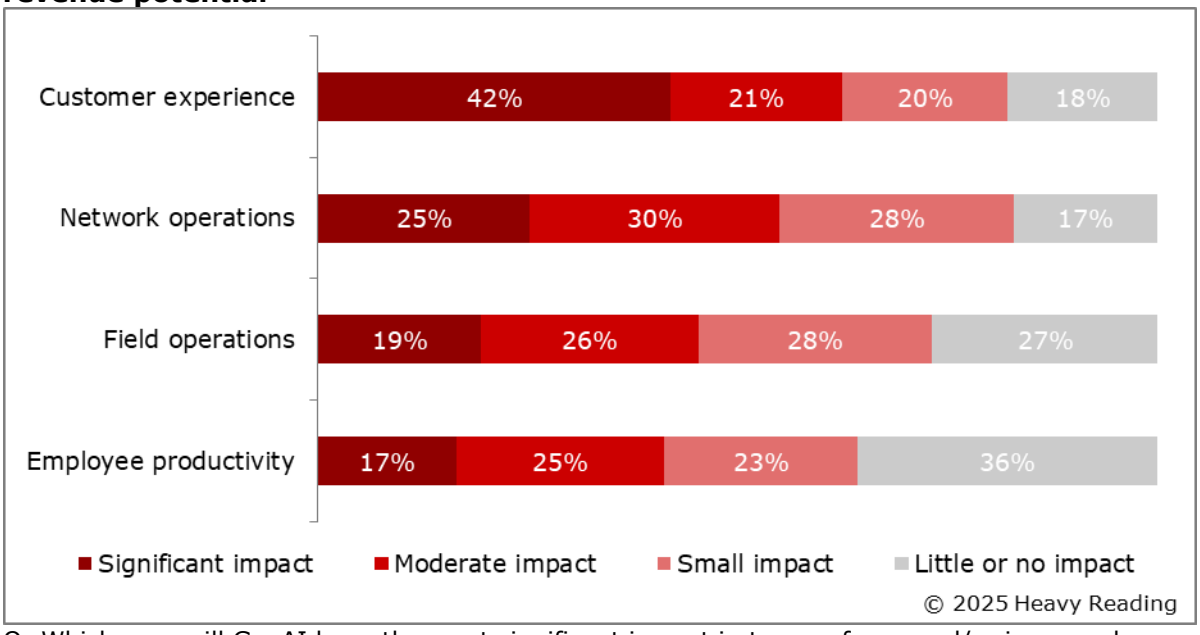
How does the scenario change when looking at enabling new revenue streams rather than focusing on operational costs and efficiency (see **Figure 18**)? The picture looks fairly similar, but customer experience is way out in front, with CSPs using GenAI to not only reduce the number of calls to help desks but also to

- Improve customer satisfaction with the help desk
- Create dynamic pricing bundles
- Tailor service bundles
- Personalized content
- Power smart loyalty programs
- Develop targeted upselling and cross-selling opportunities

NetOps also holds the promise of new revenue streams for the CSPs, mostly by turning NetOps core competencies into as-a-service offerings for customers (either internal customers or enterprise ones; e.g., AI-enhanced NaaS, data insights as a service, and edge network as a service).

The remaining two areas can be linked to the first one—customer experience. Improved field ops, resulting in faster problem resolution, has a direct impact on customer satisfaction. AI-enabled personalized marketing, upselling, and bundles add to the productivity of marketing and sales personnel.

Figure 18: Customer experience also shows the most promise in terms of new revenue potential



Q: Which area will GenAI have the most significant impact in terms of new and/or increased revenue? (n=112)
Source: Heavy Reading, 2025

STANDING AT THE CROSSROADS OF AI

The results of this Heavy Reading survey show that, as of the close of 2024, almost half of CSPs were still on the sidelines of AI deployment. A quarter had one live pilot, and 30% had more than one. As their deployments accelerate and mature over the next three years, survey respondents expect AI to play a key role across CSP operational domains. Customer experience and network operations are expected to benefit the most as AI is increasingly integrated across call center operations and used to improve efficiency, lower operational costs, and open up new revenue streams.

The survey results show that two key areas of concern with AI deployment continue to challenge the CSPs. The first is data management: breaking down data silos, scrubbing data, and securing data. The second area is the scarcity of personnel within their organizations with the needed AI skill set. AI development requires highly specialized skills, including data science, ML, and advanced analytics. With these skills in short supply and competition for such talent stiff, CSPs continue to look outside of their organization for help. They have expanded their ecosystem, most notably with the hyperscalers, to fill in these skills gaps. CSPs are also looking to the partner ecosystem to help improve their competitive posture with vertical industry expertise.

Heavy Reading's survey results underscore that AI is a key enabler for telcos working to enhance customer satisfaction, optimize operations, and stay competitive in a rapidly changing landscape. Those CSPs that renounce the sidelines and pursue AI will have a significant edge in terms of efficiency, innovation, and market adaptability.