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Perspective

Market insights: a guide for CSPs on maximizing the value of GenAI

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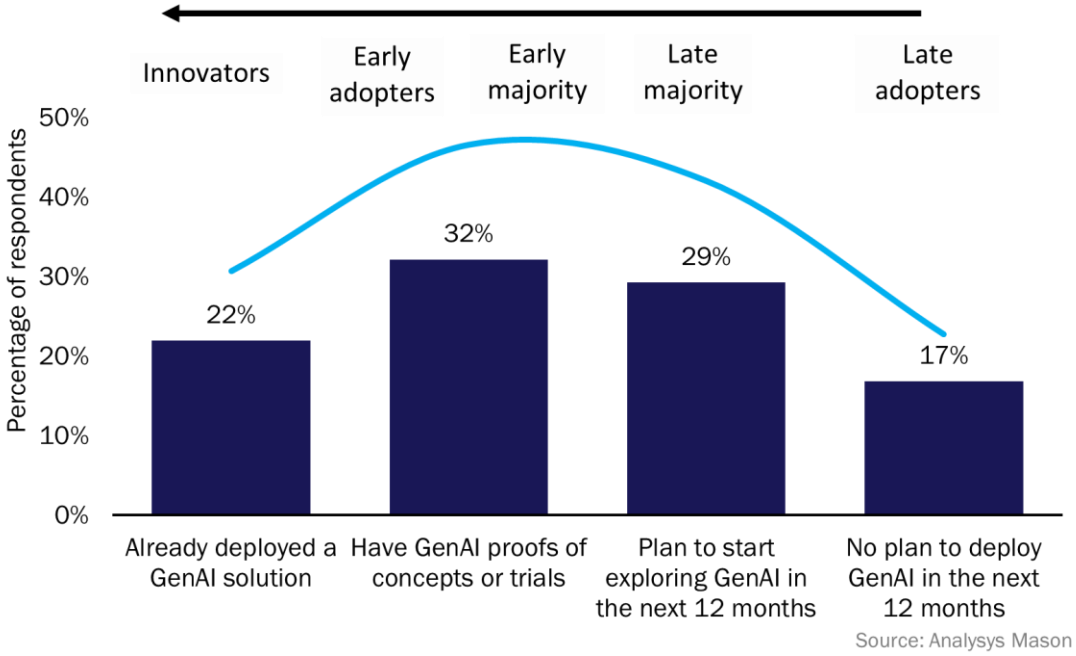
Contents

List of figures

1. CSPs are in a competitive race to adopt GenAI

The rise of generative AI (GenAI) over the past 2 years has been extraordinary and it has enormous potential to transform each aspect of every industry. This is because GenAI is a 'democratic' form of AI that anyone can access through emerging tools and applications and apply in their daily activities. The democratic nature of GenAI is the reason why it is so powerful and also why it is a threat: companies that can harness GenAI quickly and skilfully will be able to distance themselves from rivals because they will benefit from superior productivity, speed to market and value creation capabilities. Nevertheless, in a recent global survey of communications service providers (CSPs) conducted by Analysys Mason, **less than a quarter of CSPs** have so far deployed a GenAI solution and **nearly half of respondents** have yet to start exploring GenAI at all.

Figure 1.1: CSP plans for GenAI adoption, worldwide,4Q 2023[1]



At present, most companies are investigating or applying GenAI to relatively low-impact use cases, such as text summarization, queries and the creation of content for marketing purposes. However, GenAI's real potential will not be realised until it has been deeply embedded into core business processes, which will transform the performance, speed and cost of delivering these processes and generate new insights that companies can use to drive further value.

GenAI is a technology that cannot be ignored. As the technology becomes mainstream, companies need to act quickly to control it in order to gain a competitive edge. CSPs agree on this point: **90% of our survey respondents** said that GenAI is becoming critically or highly important for achieving near- and medium-term business goals. Respondents also expect GenAI to have an impact across all business domains and are struggling to prioritise use-case adoption when GenAI is applicable everywhere. CSPs know that they cannot afford to lag

[1] See the appendix for a further breakdown of CSPs' GenAI adoption plans by region and by CSP size.

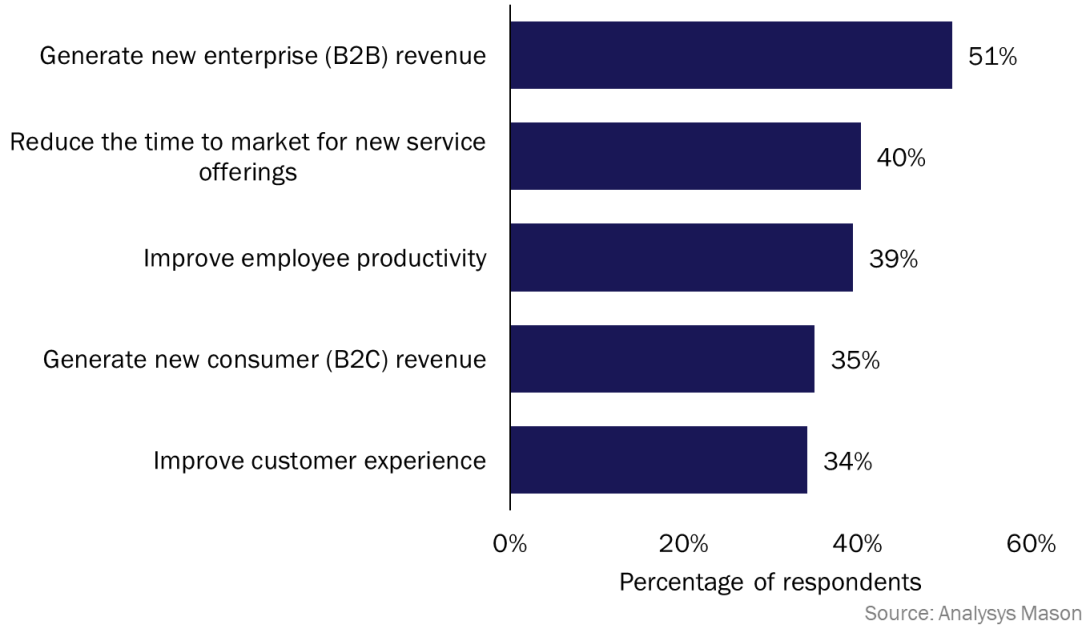
behind their competitors in the global race to adopt GenAI but our research shows that they need to accelerate their GenAI efforts or they risk losing business to competitors that have a superior command of the technology.

The insights in this paper are derived from a survey of **114 CSPs** in North America, Europe and Asia–Pacific and qualitative interviews with eight CSPs. The survey was conducted in 4Q 2023. More details about the survey demographics can be found in the Appendix.

2. CSPs must identify GenAI use cases that deliver a clear return on investment

Most CSPs expect to use GenAI to create new revenues (especially within their enterprise businesses), reduce time to market for new services and improve employee productivity (see Figure 2.1). However, CSPs are struggling to create a business case for GenAI when they are overwhelmed by the choice of domains in which to apply the technology, swamped by the rapid pace of its development and are contending with a lack of GenAI expertise across their organizations. Furthermore, CSPs should be placing more importance on using GenAI to improve customer experience; for the most advanced CSPs, this is already a strategic long-term driver of GenAI investment.

Figure 2.1: Top drivers for CSP investment in GenAI, worldwide, 4Q 2023[2]



Source: Analysys Mason

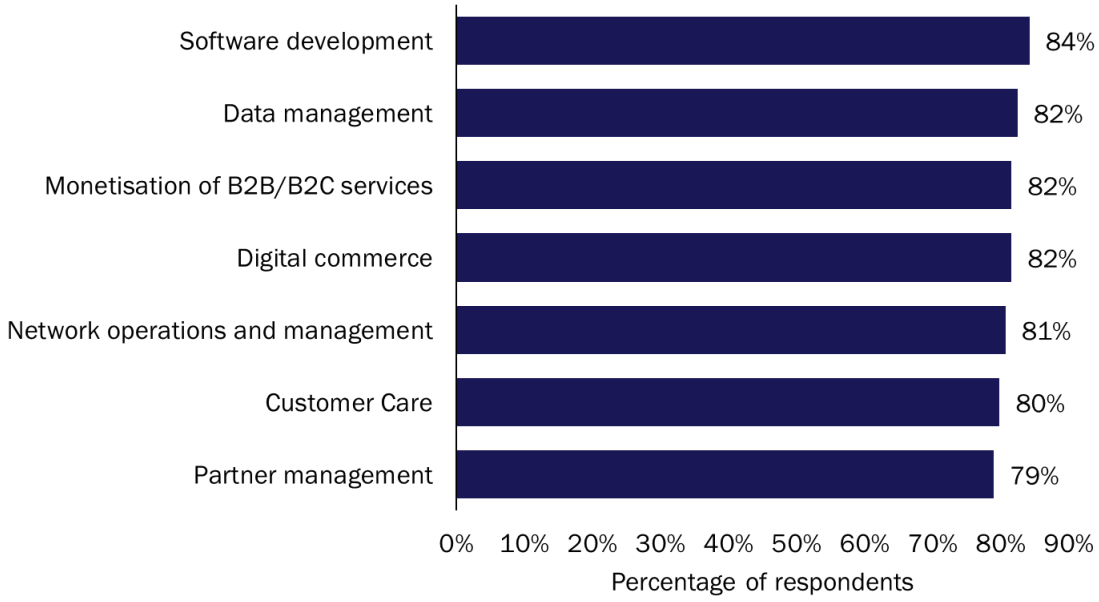
CSPs should invest in GenAI use cases that will result in long-term improvements in operational efficiency and customer experience to keep themselves ahead in the new GenAI-driven race for competitive differentiation. This can only be achieved when GenAI is integrated into a CSP's business processes and systems.

[2] Please rank your company's top two drivers for investing in generative AI. *n* =114.

The low-impact GenAI use cases that most organisations are experimenting with today will only deliver marginal value compared with GenAI use cases that drive actions through advanced automation. Automation is key to the reduction of costs from operations and friction from customer engagement. **75% of survey respondents** expect that integrating GenAI with operational systems will expand the range of automated actions and tasks that operational systems can perform. However, CSPs will need to build strong business cases to justify this investment. These business cases should take into account the need for GenAI systems to understand the specific telecoms contexts and environments into which CSPs will deploy them and the training of such systems on telecoms data.

Paradoxically, the rapid development of GenAI and its applicability to so many business domains (see Figure 2.2) is affecting the speed at which CSPs can adopt the technology.

Figure 2.2: Business domains in which CSPs expect GenAI to have the highest level of impact, worldwide, 4Q 2023[3]



Source: Analysys Mason

Many CSPs want to invest in GenAI at a faster rate, but first, they need to understand which applications of GenAI are going to deliver the greatest business benefits and what their roadmaps for adoption should look like. These CSPs that have already invested in traditional AI also need to be convinced that GenAI will add further value to AI-driven use cases that they already have in place.

One senior director of data analytics, data products and data science at a North American CSP pointed out the following.

"The biggest challenge we face due to the need for upfront education on generative AI is the delay in investment. This delay hinders us from capturing the value and benefits at a quicker rate."

[3] Which of the following generative AI use cases would you be most interested in deploying within your company? Grade 1 to 5, with 5 = very high interest and grades 4 + 5 displayed in the chart. *n* = 114.

In order to minimize this delay, leading CSPs are looking for partners that can contribute knowledge and experience of where GenAI can make a difference within a telecoms business. Such partners can help CSPs accelerate three aspects that are critical to the successful creation of a GenAI business case:

- cross-organization education on Gen AI, from C-level executives who need to support GenAI initiatives to employees whose day-to-day tasks will be affected by GenAI
- identification of key use cases on which GenAI can have significant business impact, including the 'quick wins' that will encourage corporate buy-in and prove the value of the technology
- knowledge and experience of training and tuning generic GenAI foundation models (FMs) so that the models understand the telecoms context and language of the target use cases and can deliver accurate results.

3. CSPs should prepare their organizations to implement telecoms-specific GenAI

CSPs recognize that they require three capabilities to implement GenAI successfully.

1. An agile GenAI use case development team supported by a GenAI Center of Excellence
2. A holistic data management strategy
3. The ability to integrate GenAI into business processes and systems.

An agile GenAI use case development team

CSPs need to establish a central organization that can co-ordinate GenAI business case and use case development across lines of business and operational domains. Survey respondents noted that alignment with compliance, privacy and security regulations is a major barrier to GenAI adoption, so a central program office or GenAI Center of Excellence should establish the guardrails that a CSP needs to implement and operate GenAI use cases safely and efficiently. The central GenAI organization can also promote GenAI best practices and agile development approaches and advise on the appropriate application of specific GenAI FMs. A GenAI Center of Excellence is therefore key to the agile adoption of the technology because different departments within a CSP's organization will not have to duplicate other activities for themselves in order to deploy it.

As part of its role as co-ordinator of GenAI adoption, a GenAI Center of Excellence will need to work with the CSP's vendor partners to align the latters' products and services with its guardrails and governance requirements. One CSP in North America explained this process as follows.

"*We hope that our internal investment in centralized standards and practices, like responsible AI, will provide a blueprint that we can give to vendors to ensure that their AI features comply. This will ensure that we can trust and integrate their AI systems.*"

The establishment of a GenAI Center of Excellence is a non-trivial task and CSPs should seek out partners to help them design, build and operate such an organization.

A holistic data management strategy

75% of respondents said that they were likely to invest in their data architectures to support their GenAI deployments. As a senior member of a Europe based CSP's CTO Group Research and Innovation unit remarked:

"*Generative AI brings opportunities and awakens people in the company to the concept of AI in general. These challenges turn data into a burning issue we need to address*."

For the first time, GenAI enables CSPs to drive value from large bodies of unstructured text and documents without requiring deep data science expertise. However, the quality of output from a GenAI system is correlated with the data that it is trained on, and the specific nature of high-value telecoms use cases means that GenAI models will need access to clean, accurate telecoms-specific data, and potentially large volumes of it. This means that siloed data environments, as well as fragmented and ungoverned data, can affect a CSP's ability to deliver GenAI projects. If CSP data architectures do not satisfy these requirements, CSPs risk delivering GenAI solutions that provide low-quality outputs and hence slow down adoption. This reality is driving CSPs to reassess existing data architectures and invest in upgrading them to scale GenAI developments.

CSPs indicate that they need help to standardize telecoms data preparation processes[4] for both structured and unstructured data sets across their organizations and the migration of such data sets to a central data repository, potentially located in a hybrid cloud for scalability reasons. Data preparation processes must also be underpinned by data governance[5] policies because these policies define how data sets are to be used and stored and who can use them. Given the high demand for GenAI across CSP business domains, CSPs will require support from vendor partners to help evolve and standardize data architectures and provide toolsets that enforce governance practices to fast-track GenAI developments.

GenAI integration with business processes and systems

As discussed, GenAI integration with internal workflows and systems is key to high-impact transformation of a telecoms business. CSPs can use GenAI to summarise call center conversations and maintenance manuals, but unless GenAI outputs can trigger an automated action, or series of workflows (such as the immediate identification of the root cause of a fault and the subsequent automated fixing of the fault), its value will be limited.

Just under half (46%) of respondents ranked GenAI integration with business processes as a critical success factor for GenAI implementation, **81%** called it out as the largest challenge that they face in being ready for GenAI and **64%** want GenAI to enable closed-loop automation. CSPs recognise the link between high levels of

[4] These include data assessment for useability (including quality assessment), collection, cataloguing and classification, integration, and storage.

[5] Data governance defines the policies and procedures that data preparation processes must follow to ensure that data exposed for GenAI purposes maintains compliance with regulation.

automation and competitive differentiation and expect GenAI to become a critical tool for achieving both. As one CSP in North America stated:

"What we are currently seeing in terms of capability with LLMs is just the tip of the iceberg. When you think about GenAI helping to answer questions, to search and to normalize text, these are all very powerful capabilities but they're just the tip of the iceberg. I envision a future where we have an employee-facing agent-based solution that helps to create speed to market and efficiency across the organisation. So yes, integration with our systems is critical. Otherwise, we're going to be stuck in that small, narrow, tip of the iceberg use-case exploration area of just text-based and image-based use cases.

Figure 3.1 below outlines a sample list of use cases that CSP respondents would like to achieve from the integration of GenAI with their operational workflows.

Figure 3.1: Sample list of advanced GenAI use cases that require integration with CSPs' business processes and systems, worldwide, 2023

CSP business domain	GenAI use case
Customer support	Build a GenAI based chatbot that can respond to, and take actions to resolve, customer enquiries. The foundation models (FMs)/large language models (LLMs) embedded within the chatbot connects to billing systems to provide personalized feedback on customer questions regarding billing issues. Based on this feedback, the chatbot can perform automated actions to correct any billing errors.
Network Design and Planning	Integrate FMs/LLMs with BSS/OSS systems to derive data such as service usage and inventory data to define network design parameters and to create designs for new networks. In addition, the connection of FMs/LLMs with CSP network infrastructure and customer care systems can also enable CSPs to query these systems to determine locations with coverage and capacity issues for upgrade.
Marketing operations	Use LLMs that integrate with customer information systems and traditional AI systems to improve customer segmentation and to automate the implementation of highly personalised and context-driven campaigns to customers.

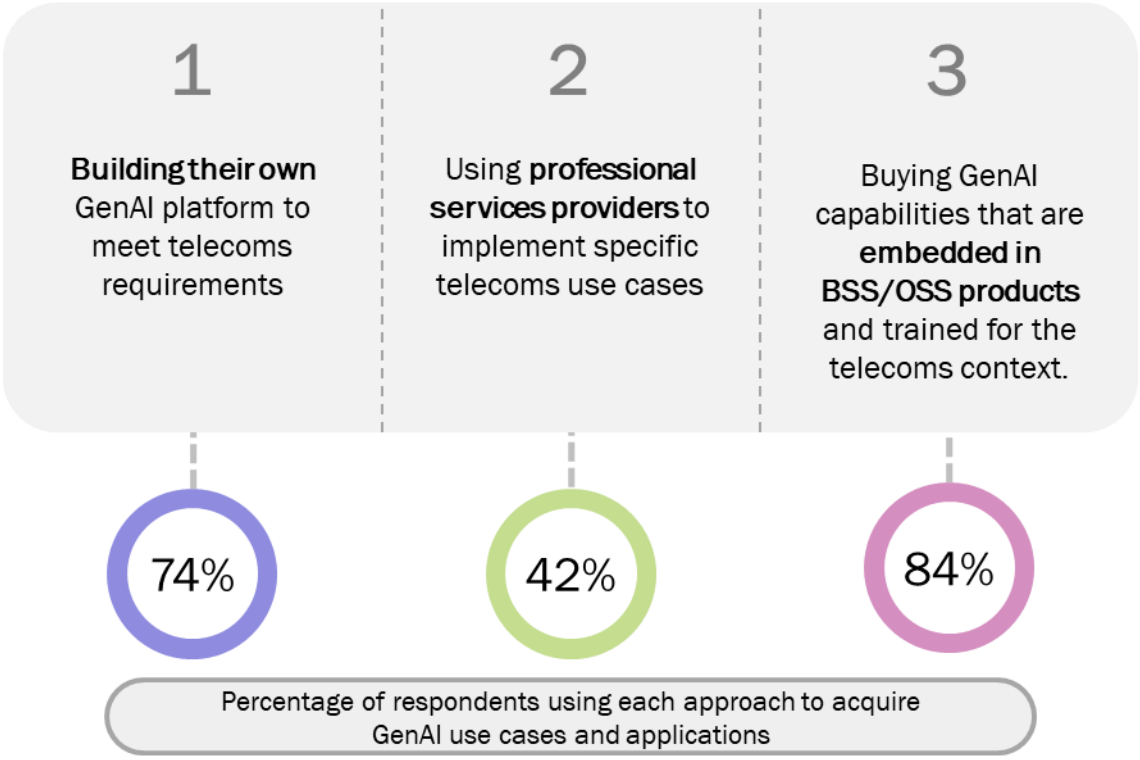
Source: Analysys Mason

CSPs have work ahead of them to prepare their BSS/OSS for integration with GenAI. They must replace their systems' proprietary interfaces and increase visibility into the parameters required to enable interoperability with GenAI FMs that have been trained and/or tuned for telecoms-specific system contexts. This will give CSPs a clear view between inputs and outputs when GenAI FMs interact with BSS/OSS across workflows. CSPs will need their BSS/OSS partners to help them to decide on the best adoption approach for GenAI and the FM integration and training practices that will deliver most transformational benefit to their business and operational processes.

4. CSPs should weigh up the cost benefits of different approaches to telecoms-specific GenAI implementation

CSPs are currently experimenting with three main approaches to bringing GenAI capabilities into their organizations.

Figure 4.1: CSP approaches to acquiring GenAI capabilities



Source: Analysys Mason

Many CSPs are investigating more than one approach to understand their related costs and benefits.

Building a GenAI platform to meet telecoms requirements

In this early phase of the market, **almost three-quarters of respondents** are exploring what it takes to build their own GenAI platform. Such a platform may either be based on a single vendor's FM, for example, any one of OpenAI's GPT models and associated tooling, or it can include multiple vendors' FMs integrated into a 'model garden' that provides a common set of services and governance capabilities to internal developers. Such a model garden may also include existing traditional AI tooling and models. This approach is being pursued by the largest and most-advanced CSPs because it gives them greater control over their GenAI destiny and the ability to match different FMs to specific use cases.

Some of these CSPs are even implementing or considering building their own large language models (LLMs) to add to their model gardens. However, many CSPs will find it too slow and expensive to build their own GenAI platforms when the right skills and resources are scarce at this point in the market and they will have to undertake the training and tuning of these models for the telecoms environment themselves. A single LLM

vendor's platform is quicker to adopt but CSPs will trade speed for lock-in to a single FM vendor and a generic model will not deliver accurate results without tuning.

Using professional services providers to implement specific telecoms use cases

Nearly half of all survey respondents are seeking professional services assistance with applying GenAI to specific use cases. Professional services organizations can help with GenAI preparation activities, such as business case, improvements to CSP data management systems, GenAI integration into the workflows and systems that underpin the use case and telecoms-specific model training. A professional services organization can provide expertise and skills that can accelerate and smooth out a CSP's GenAI adoption journey but CSPs should ensure that they have an overall roadmap that will guide a use-case-by-use-case approach.

Buying GenAI capabilities that are embedded in BSS/OSS products and trained for the telecoms context

The majority (84%) of respondents want GenAI to be embedded in the BSS/OSS products that they buy from vendors so that they natively acquire GenAI capabilities and workflow integration with those systems. This is likely to be the fastest and most cost-efficient way of bringing telecoms-oriented GenAI into CSP organizations and use cases but there are a few caveats. CSPs should work with BSS/OSS vendors that are aware of the governance issues that may arise as a result of multiple operational systems potentially working with different FMs from different GenAI platform providers. A BSS/OSS vendor should be able to help create and fit into a CSP's governance framework. The BSS/OSS vendor should also be able to advise CSPs on the guardrails that they need for responsible AI and it must be able to explain how its embedded GenAI model achieves results and drives embedded automation.

5. Conclusion

The telecoms industry views GenAI as being a transformational technology with the capability to drive improvements across business domains. Commercial deployments, proof of concepts (PoCs) and trials have commenced and these activities are expected to increase in the next 2 to 3 years. However, current use case deployments will not achieve the level of transformation that will enable CSPs to maximise investments in GenAI.

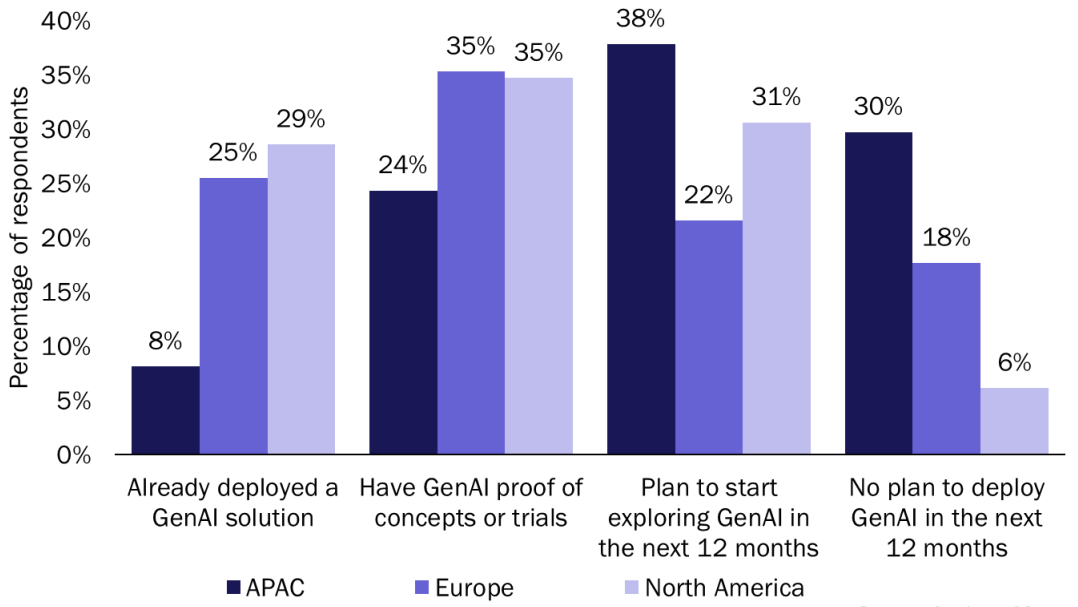
For CSPs to achieve their expectations, they should adopt a use case strategy that allows them to realize value quickly. They should aim for GenAI model integration with operational workflows and BSS/OSS, ensuring that the models understand the telecoms contexts into which they are being deployed, and use well-defined and easily accessible APIs. CSP must also invest in developing their telecoms data preparation and governance functions because these will ensure that GenAI implementations generate high-quality outputs and align with industry, security and privacy regulations.

CSPs that apply these best practices early will transform their operations ahead of their rivals, ensuring that they remain competitive in a new GenAI-driven era.

6. Appendix

Please find below the charts which provide further details on CSPs' plans for adopting GenAI by region and by CSP revenue.

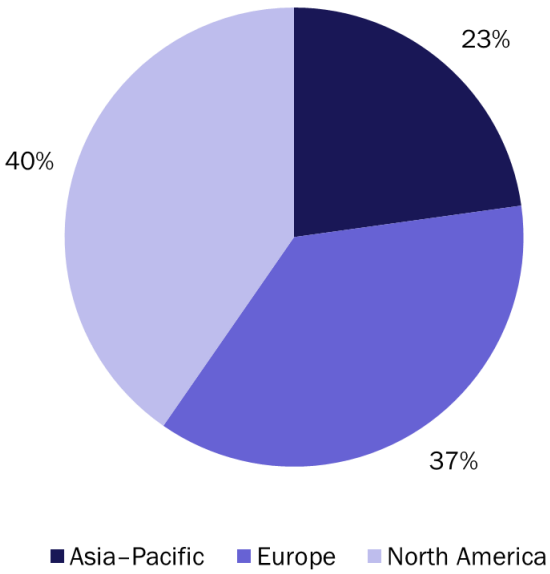
Figure 6.1: CSP plans for GenAI adoption, by region, 4Q 2023



Source: Analysys Mason

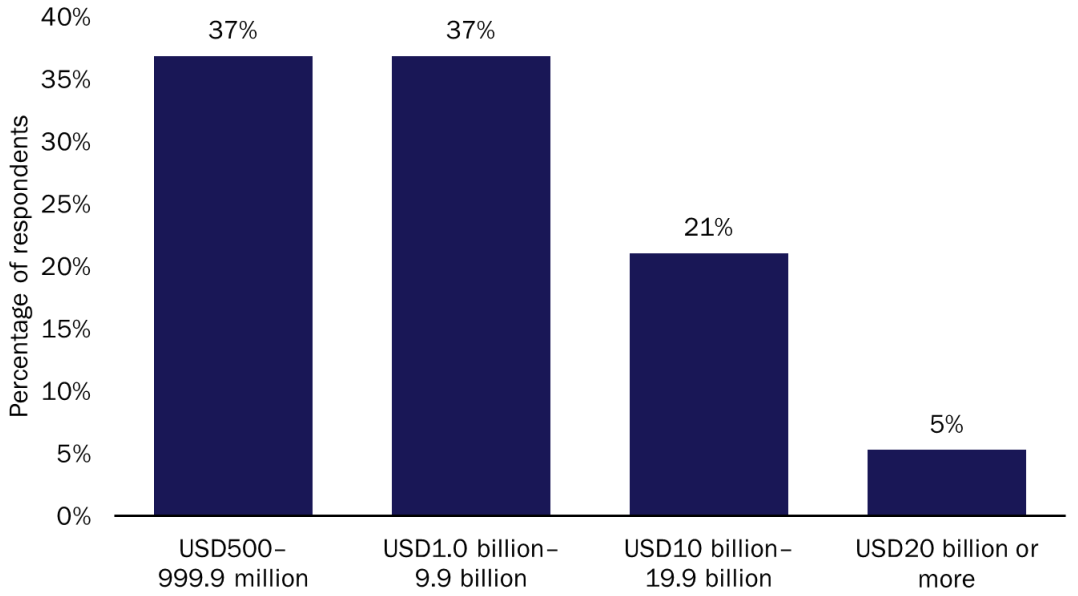
Please find below charts that provide demographic insights into the quantitative survey conducted in 4Q 2023 to support the findings shared in this report.

Figure 6.2: What region is your organization's headquarters located in?



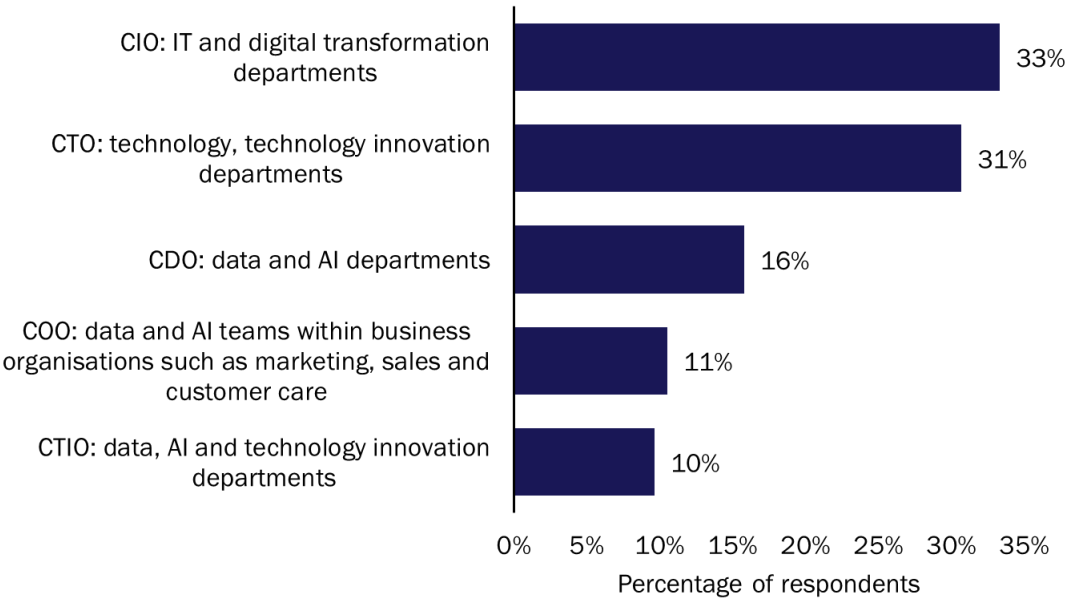
Source: Analysys Mason

Figure 6.3: What is your organization's current annual revenue?



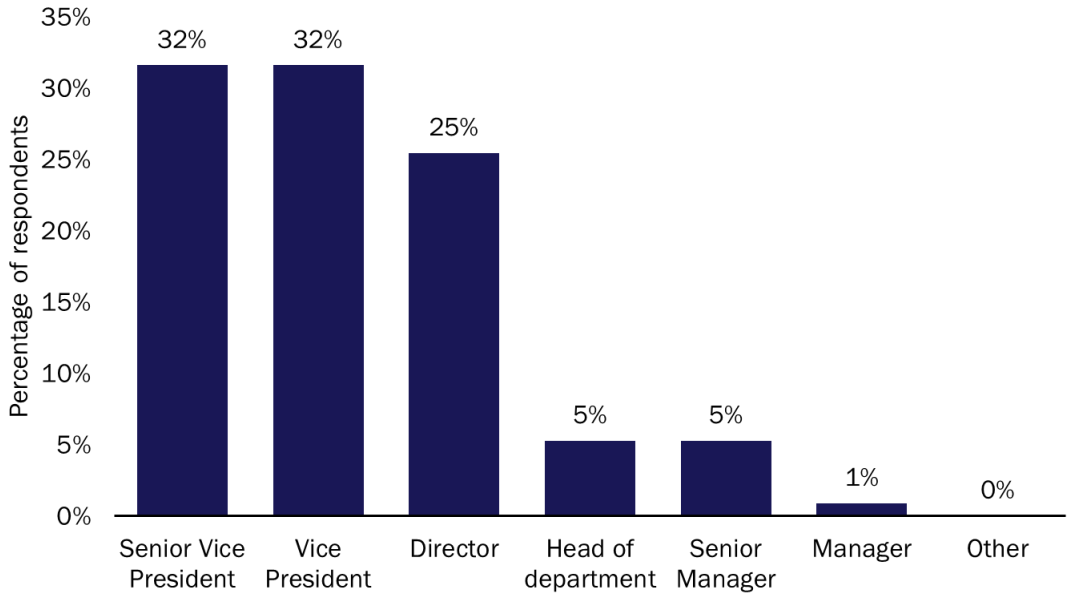
Source: Analysys Mason

Figure 6.4: What organization within your company do you belong to?



Source: Analysys Mason

Figure 6.5: What is your level of seniority within your department?



Source: Analysys Mason

7. About the authors

Adaora Okeleke (Principal Analyst) leads Analysys Mason's Data, AI and Development Platforms research programme. Her research focuses on service providers' adoption and use of data management, artificial intelligence, analytics and development tools to support the digital transformation of network, customer and other business operations. Adaora tracks vendor strategies for the telecoms industry to understand how they are evolving their product portfolios to include data, AI and development capabilities.

Joseph Attwood (Research Analyst) is based in our London office. He is part of the Cloud research practice and contributes to the Cloud Infrastructure Strategies, Multi-Cloud networking and Data, AI and Development Platforms programmes. Focus areas for his research include the cloud-native transformation of telecoms operators, disaggregated networking technologies and the application of generative AI in the telecoms industry. He studied computer science at the University of Surrey.