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Artificial intelligence in telecommunications: sector developments report

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Executive summary

This report examines how artificial intelligence (AI) is being used in the telecommunications sector globally and in Australia. It addresses 4 key questions:

- Why are telcos investing in AI?
- What is the size of AI investment in telecommunications?
- What are the emerging trends and future impacts of AI in telecommunications?
- How can AI support network recovery and resilience?

Key findings

Drivers of investment: Telcos are adopting AI to improve operational efficiency, reduce costs and create new revenue streams.

Investment and returns: Global spending on AI is significant but difficult to quantify. Research indicates potential cost savings of between 1% and 9%, as well as opportunities for new revenue.

Emerging trends: Autonomous networks, generative AI, sovereign AI and AI-as-a-service are shaping future strategies and business models.

Australian context: Public announcements between January 2024 and May 2025 show local operators embedding AI in customer service, workforce tools and network security, supported by partnerships with global technology companies.

Resilience: networks using AI can predict faults, automate recovery and improve reliability through intelligent, self-healing systems.

Introduction

This report provides an overview of how artificial intelligence (AI) is being used in the telecommunications sector, both globally and in Australia. It explores 4 research questions:

- Why are telcos investing in AI?
- What is the scale of AI investment in telecommunications?
- What are the emerging trends and future impacts of AI in telecommunications?
- How can AI support network recovery and resilience?

The first part of the report looks at AI in the global telecommunications industry: why telcos are investing in AI, how much they are spending and what savings they are making by using AI. It also highlights emerging trends and possible future developments, based on independent reports and expert analysis.[1]

The second part focuses on recent AI developments in Australian telcos. While detailed investment data is limited, it includes a summary of public announcements from January 2024 to May 2025.

The final part discusses how AI can help networks recover from disruptions and become more resilient, drawing on examples from Australia and overseas.

The definition of AI can vary across industries and in the reports and articles of different organisations and authors. In this report, terms such as ‘traditional AI’ and ‘generative AI’ are used to discuss AI developments in the telecommunication industry. Based on a synthesis of key sources reviewed for this report, an explanation of these terms is provided on page 8.

Throughout this report, ‘telco’ refers to a telecommunications company that provides wired or wireless infrastructure or services or both. The term communications service provider (CSP) is also used in this report, which refers to businesses that, in addition to owning or operating telecommunications infrastructure, may be involved in operating or delivering digital networks and platforms. This report is part of the ACMA research program. Our research provides evidence that informs our decisions. It helps us to better understand communications and media markets and the issues that matter to Australians.

Generative AI tools were used to assist in preparing this report. All data, sources and references have been checked manually by ACMA staff.

[1] These companies include consultancy firms, advocacy groups, think tanks and technology businesses. While every effort has been made to present quality information, the reader should keep in mind that possible biases exist in some of the claims made by these companies.

The global picture

AI in the global telecommunications industry

Telcos around the world use AI as it offers opportunities to reduce costs and make operations more efficient. In a 2025 white paper, the World Economic Forum (WEF) suggested that using AI may also 'increase the return on investment on the large capital expenditure investments made by telcos'.[2]

However, the WEF also noted that many telcos still struggle 'to implement use cases (particularly those involving generative AI) at scale due to challenges around data and legacy infrastructure', talent gaps and responsible action, for example, governance.[3] Similarly, Analysys Mason noted in a 2024 report that while 'operators' AI investments have increased productivity [and] reduced costs',[4] telcos 'are finding it difficult to prioritise AI use cases and to test and implement them'.[5] It also observed that it is not 'obvious which AI use cases will reap the greatest benefits, or the extent of return on investment, making the initial investment proposition more complex, especially when budgets are limited'.[6]

Why are telcos investing in AI?

Drawing on insights from multiple reports on AI and the global telecommunications industry, this section outlines key reasons why telcos worldwide are investing in AI technologies.

Given the complexity of the global AI supply chain in the telco sector – and the overlapping nature of technological and business drivers – 3 themes have been developed to help structure the information. While each theme is distinct, there are areas of overlap, such as the use of generative AI, which overlaps multiple themes.

Theme 1: Infrastructure, network and operations

This includes changes to operations and services along with improved efficiency and revenue generation. Examples include:

- integrating AI into radio access network infrastructure – this includes to 'enhance spectral efficiency' for the radio access network (RAN).[7] See page 9 for further discussion on AI RAN
- using generative AI to make operations more efficient 'through improved employee productivity' and, in-turn, positively impact customer services.[8] See theme 2 below for more discussion of customer services)
- using generative AI-driven services to offer 'AI infrastructure services to enterprise customers' and generate new revenue.[9]

[2] World Economic Forum, *Artificial Intelligence in Telecommunications*, p 4.
[3] World Economic Forum, *Artificial Intelligence in Telecommunications*, p 4.
[4] A Okeleke, AI in telecoms: a strategic guide for operators and vendors, Analysys Mason, 30 September 2024, p 14, accessed 20 May 2025.
[5] A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, p 4.
[6] A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, p 4.
[7] NVIDIA found that telco operators are investing in 'accelerated computing into the network infrastructure stack, providing a software-defined, accelerated platform that can power RAN and AI from the same infrastructure'.
[8] A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, p 9.
[9] A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, p 9.

Theme 1: Issues to consider

TM Forum notes that 'when it comes to using AI for automation, generative AI has its limitations, particularly in the network and the drive towards autonomous networks' (autonomous networks are discussed more on page 9).[10] It also says that while, in many cases, AI-enabled automation can help employees do their current jobs more efficiently, it asks whether operators will:

> be able to capture these time savings and convert them into the elimination of different roles? Or will [AI automation] simply allow employees to focus their time on other tasks and functions that create more value? Ultimately, this will come down to departmental budgeting, the pressure to reduce [capital expenditure] and [operating expenditure], and whether AI and automation are two of the tools that CSPs lean on to cut costs.[11]

Theme 2: Marketing, sales and customer services

This includes transforming and improving customer experiences and driving business growth with personalised sales and marketing tools. Examples include:

- diversifying sales and marketing revenue through AI-as-service offerings (for example, the use of cloud computing to deliver AI services and tools)[12]
- using generative AI and natural language capabilities to create new types of chatbots and replace customer service staff with AI retail assistants[13] – one expected outcome of this is greater productivity.[14]

[10] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 6.
[11] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 7.
[12] World Economic Forum, *Artificial Intelligence in Telecommunications*.
[13] World Economic Forum, *Artificial Intelligence in Telecommunications*; M Newman, *Building an AI strategy: Telcos put the foundations in place*.
[14] M Newman, *Building an AI strategy: Telcos put the foundations in place.*

Theme 2: Generative AI and customer and marketing insights

TM Forum notes that the main challenge with using traditional AI in marketing and customer services has been the large amount of unstructured data.[15] This data comes from communication between the customers and service points or 'digital touchpoint' and includes written and spoken language. TM Forum reports that operators are now using generative AI to leverage this unstructured data and create insights both for contact centre agents and for customer experience, marketing and sales teams.[16] It explains that 'rather than having to go through a slow, difficult process of cleansing, consolidating and labelling the data, there may be scenarios where unstructured data can be put straight into a [large language model]'.[17]

Australian telcos have also faced challenges with unstructured data. In 2025, Optus announced a partnership with Microsoft, Tech Mahindra and Databricks to create a 'unified data platform'.[18] Optus moved its data, applications and systems into a single cloud platform to prepare for future projects. Previously, data was stored on equipment in different locations. Mark Potter, Optus Chief Information Officer, said:

> This platform has improved our data quality, it's improved our data timeliness, it's improved our data controls, our data security, data privacy, it's improved our data management tool set around that…and that now provides us with a capability from which [large language models] can now interact.[19]

Theme 3: Creating new services and transforming operations using generative AI

The outcomes are generating revenue and greater productivity and business performance.[20] Many examples in the previous two themes also fall under this category, as they involve operational transformation and service innovation. Another example is:

- Telcos and private equity firms are building data centres that use generative AI. Deloitte notes that several global telecoms have announced plans to build their own generative AI data centres, using the training and inference capacity to offer new services and sell generative AI as a service to others. This trend is largely driven by data sovereignty needs. Deloitte cautions, however, that it expects only some telcos will invest this way.[21]
- This use case shows telcos extending their businesses and operations into what could be considered non-telco areas. TM Forum notes that CSPs are spending more on third-party providers and, as they increasingly adopt generative AI, will become more reliant on hyperscale service providers and the public cloud.[22]

[15] GlobalData noted that disparate databases have, perhaps, been the biggest challenge for telcos and that generative AI has driven the need to create unified databases.
[16] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 30.
[17] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 17.
[18] Optus, Optus accelerates data and AI transformation with consortium led unified data platform [press release], Optus, 12 March 2025, accessed 15 May 2025.
[19] R Pearce, Tech from Google, Anthropic underpins Optus AI strategy, Communications Day, Issue 7103, 24 April 2025, p 6.
[20] For a broad overview of Gen AI investments see A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, and M Newman, *Building an AI strategy: Telcos put the foundations in place*.
[21] D Van Dyke, D Littmann, J Fritz, D Stewart & P Raman, 2025 global telecommunications outlook [online report], Deloitte Centre for Technology, Media & Telecommunications, 20 February 2025, accessed 22 May 2025, p 7.
[22] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 7.

Generative AI: what's all the hype?

While operators are increasingly using generative AI, Analysys Mason said in 2024 that 'the hyperbole around generative AI exceeds the reality'.[23] In its 2024 report, TM Forum said generative AI is 'likely to see wide-scale deployment' in the telecommunications sector. But it also questioned whether the reason so many professionals focus on generative AI, rather than other types of AI, is simply because it has caught the attention of company boards and their advisers.[24]

Academic researchers have argued that current AI activity is a 'textbook example of a tech hype cycle'. Developed by research firm Gartner, a tech hype cycle describes 'how emerging technologies rise on a wave of inflated promises and expectations, crash into disillusionment and, eventually, find a more realistic and useful application'.

Figure 1: Tech hype cycle

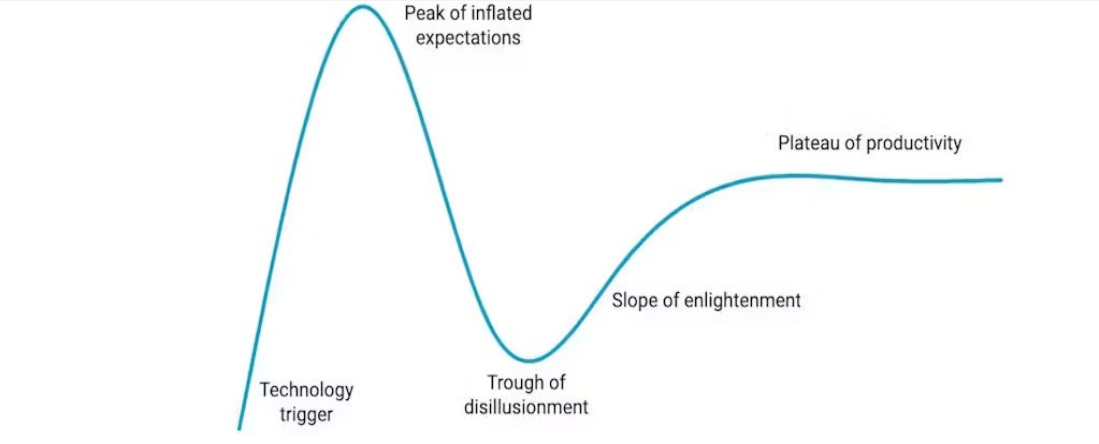


Image source: The Conversation, June 11 2025, CC BY-ND, no changes have been made to the original image

The authors state that the current AI hype cycle 'appears to be tapering off, and the consequences of rushed or poorly thought-out implementations will likely become more visible in the coming years'. However, they add that 'this decline in hype doesn't signal the end of generative AI's relevance. Rather, it marks the beginning of a more grounded phase where the technology can find the most suitable applications'.[25]

GlobalData noted that while 'marketing and customer-facing services are well suited for the natural language processing capabilities' of generative AI, many other telcos 'will adopt conventional machine learning algorithms and combine with generative AI only when it makes sense'. It also cautions that in many cases 'if the automated system needs to operate with quick near-real time response, generative AI will not be able to cope with the demands over a public cloud service'.[26]

[23] A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, p 10.
[24] M Newman, *Building an AI strategy: Telcos put the foundations in place*.
[25] G Lipnickas, The AI hype is just like the blockchain frenzy – here's what happens when the hype dies, The Conversation, 11 June 2025, accessed 5 June 2025. See also L Munn, Is AI a con? A new book punctures the hype and proposes some ways to resist, The Conversation, 24 June 2025, accessed 5 June 2025.
[26] GlobalData, Personal correspondence, 29 June 2025.

What is the scale of AI investment in telecommunications?

Getting accurate information on spending on AI and its cost-benefit returns can be challenging. Analysys Mason notes that AI investments in the sector are 'yielding quantifiable results'.[27] However, TM Forum said in a 2024 report that it is not easy to 'measure the economic impact of AI' on the telecommunications industry because 'potential use cases are wide and varied [and] market value estimates vary greatly from different sources'.[28] It found that the lack of 'evidence of good return on investment for scale rollout' is a major issue most operators have faced with use of predictive AI[29] – what TM Forum also calls 'traditional AI', which has been used for many years in the sector and can be distinguished from generative AI (see below for more on the history of AI use in the sector).

TM Forum also says there are few examples of AI use cases or deployments in the sector 'that have delivered significant or clearly demonstratable value'.[30] Similarly, a third of respondents surveyed by NVIDIA in a 2025 report on AI and telecommunications said that 'an inability to quantify [return on investment]' for generative AI was a major challenge in using AI.[31]

[27] Analysys Mason, *AI in telecoms: a strategic guide for operators and vendors*, p 14.
[28] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 40.
[29] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 6.
[30] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 7.
[31] NVIDIA Telecommunications, *State of AI in telecommunications: 2025 trends* [pdf], NVIDIA, n.d., accessed 13 May 2025, p 9.

Historical use of AI in the telco sector

Reports from the WEF and TM Forum refer to machine learning and predictive AI collectively as 'traditional AI'. Both distinguished this from generative AI. Similarly, Analysys Mason differentiates between non-generative AI – which it says includes 'descriptive, predictive and prescriptive AI' – and generative AI.[32] Analysys Mason's distinction is illustrated in Table 1.

Table 1: Comparison of non-generative AI and generative AI

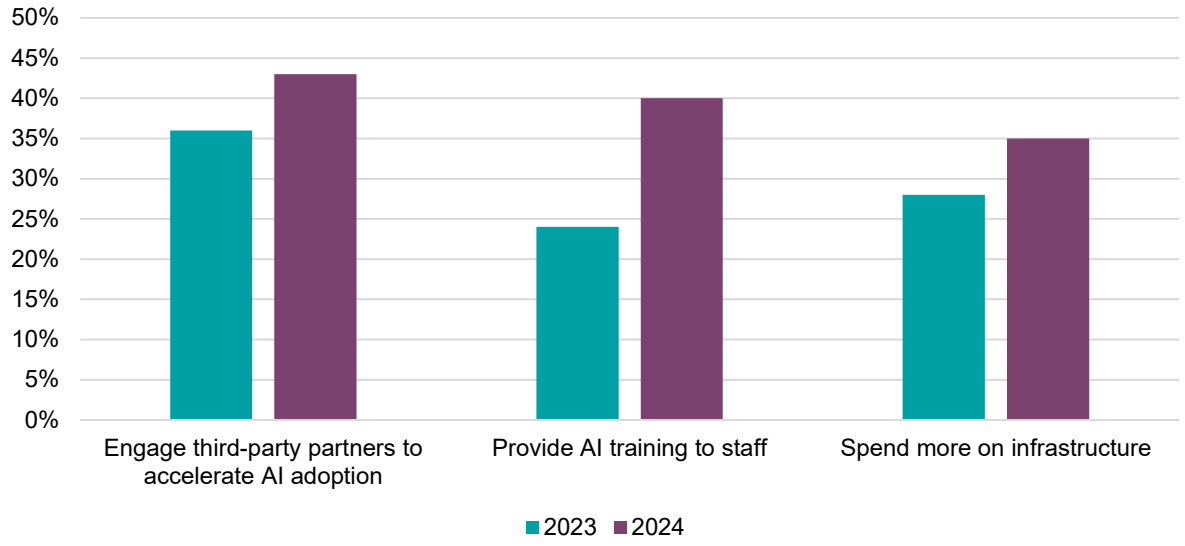
Non-generative AI	Generative AI
• Analyses and interprets existing data to make predications, decisions or classifications • Is typically developed using relatively small AI models that are task specific • Can support prediction, anomaly detection and recommendations systems • Accounts for a larger share of operators' AI activities (70% of Deutsche Telekom's total AI activities)	• Creates new content (for example, text, images, music and code) that resembles training data • Is typically developed using multi-purpose foundation models such as large language models • Can support text transcription, summarising and code generation • Accounts for a modest proportion of AI activity (30% of Deutsche Telekom's total AI activities)

Both the WEF and Analysys Mason note that the telecommunications sector has previously implemented traditional AI (or in Analysys Mason's language, non-generative AI). The WEF notes that traditional AI has especially been used in network operations. It also claims that traditional AI has 'already laid the foundation for efficiency improvements and automation' and has 'long contributed to cost reduction and efficiency'. This includes 'predictive maintenance, with nearly two-thirds of AI professionals across CSPs [communications service providers] and hardware or software providers reporting cost savings from AI use cases'.[33]

[32] A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, p 10.
[33] World Economic Forum, *Artificial Intelligence in Telecommunications,* pp 6-7.

In terms of spending priorities, NVIDIA's survey shows 3 main areas where telcos focused their AI investments in 2023 and 2024 (Figure 2).[34]

Figure 2: Top 3 spending priorities for AI, 2023 and 2024



NVIDIA reports telcos are engaging third-party partners, including 'independent software vendors, global system integrators and service delivery partners'.[35] As noted on page 5, investing in third-party partnerships could be considered a key focus area for telcos. NVIDIA also notes that investing in AI training for staff reflects the challenge businesses face in not having enough in-house AI expertise.

In terms of savings, TM Forum says its:

> … analysis of CSP [capital expenditure] and [operational expenditure] presents two scenarios for the potential savings that could result from the successful use and deployment of AI. In a 'bullish' scenario total [capital expenditure] and [operational expenditure] for telecoms operators globally falls by 9.1% from $1.8 trillion to $1.64 trillion. A 'bearish' scenario sees a 2% decline to $1.77 trillion. Based on this analysis, AI has the potential to deliver cost savings of between $35 billion and $162 billion to the global CSP sector.[36]

It notes that these figures are not forecasts but indicate potential savings from AI – and there is every prospect AI may not deliver these savings. GlobalData states that most telcos are 'hoping that AI will improve the [operational expenditure] line items because a 1-3% improvement will have a big impact on operating margins'.[37]

[34] NVIDIA, *State of AI in telecommunications: 2025 trends*, p 6.
[35] NVIDIA, *State of AI in telecommunications: 2025 trends*, p 5.
[36] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 45.
[37] GlobalData, Personal correspondence.

TM Forum identifies several areas where AI may provide savings to CSPs, including 'job cuts enabled by AI and automation' and 'new revenues resulting from the launch of AI-enabled products'.[38] It also reports that CSPs have also achieved energy savings by using AI. These savings 'can be achieved when operators gain insights that inform them when and where they can shut down capacity on their networks'.[39]

Revenue growth and saving for telcos from generative AI

Both Analysys Mason and Deloitte discuss future revenue growth in the sector from generative AI. Analysys Mason says that 'spending on generative AI will see the fastest growth' and 'will be driven by the need to improve business performance, especially as [telco] operators remain under pressure to reduce costs and improve customer experience'.[40] Deloitte observes that current applications using generative AI do not place heavy demands on fixed or mobile networks. However, this could change over time. If data demands increase, telcos may have opportunities to grow revenue – for example, by offering low-latency service plans tailored to AI use.[41]

In terms of savings, the WEF says that generative AI builds on the savings and efficiency of traditional AI by:

- enhancing 'efficiencies through data democratization and automation of repetitive, structured tasks, such as network planning applications or generating customer emails'
- enabling 'increased process automation across IT and network management'.[42]

McKinsey surveyed over 100 telcos about the potential for generative AI to reduce costs. Respondents said the biggest savings would come in customer services and network operations. McKinsey estimates that generative AI could create up to $100 billion in incremental value for the telecoms sector.[43]

[38] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 40.
[39] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 29.
[40] A Okeleke, *AI in telecoms: a strategic guide for operators and vendors*, p 24.
[41] D van Dyke et al, 2025 global telecommunications outlook.
[42] World Economic Forum, *Artificial Intelligence in Telecommunications*, p 7.
[43] McKinsey & Company, How generative AI could revitalize profitability for telcos, McKinsey & Company, 21 February 2024, accessed 15 May 2025.

What are the emerging trends and future impacts of AI in telecommunications?

Building on the earlier discussion, this section highlights the emerging trends shaping the future of AI in telecommunications. Key trends include:

- **Autonomous networks** – TM Forum identifies applications such as self-organising networks, which shift the focus from human actions to minimal human intervention.[44] Based on its Open Digital Architecture – a model that telcos use to change the way they operate and deliver services – TM Forums says 'CSPs have significantly transformed to embrace open architectures, including disaggregation of hardware and software layers to enable virtual networks that can be managed, programmed and updated remotely'.[45] TM Forum says that one factor driving the shift toward autonomous networks is the integration of software defined networks. NIVIDA notes: 'The next evolution of software-defined networks is AI-native networks, where AI enables both wired and wireless networks to become more energy- and cost-efficient and offer the flexibility to adapt to varying workloads and conditions'.[46]
- **Sovereign AI** – Sovereign AI refers to a nation's strategic use of AI 'to protect and advance its interests'. This includes developing 'domestic AI capabilities and ensuring access to critical data, technologies, expertise and infrastructure nationally'.[47] The WEF says that 'the rise of AI introduces cybersecurity risks, particularly for sensitive data'.[48] It notes that the regulation and governance of data varies by jurisdiction, and that nation states have to make decisions around 'how sovereign data is used within nationally controlled language models'.[49] GlobalData notes an emerging challenge whether telcos 'should adopt general generative AI models or consider fine tuning their own models to fit the local language and culture'[50]. Other decisions include the location of data centres and the management of 'cross-border data flows'.[51]
- **Analytics-as-a-service using AI** – Analytics-as-a-service is cloud-based and focuses on the data analysis derived from AI and other tools. The WEF says analytics-as-a-service 'allows enterprises and [small to medium businesses] to access anonymized, aggregated customer data for custom analysis and model development, combining telco data with third-party inputs'.[52]
- **AI RAN** – Deloitte says AI RAN could be a future revenue source for telcos. It notes that 'some expect AI RAN to be a logical successor to Open RAN[53] and be built on top of it, and may even be what 6G turns out to be'.[54] GlobalData adds that AI RAN 'might replace Open RAN or parts of Open RAN will be incorporated in the 6G standards'.[55] In either

[44] B Mohapatra, Autonomous networks: once a hype, gradually becoming a reality for telcos, TM Forum, 29 August 2024, accessed 15 May 2025.
[45] M Newman, *Building an AI strategy: Telcos put the foundations in place*.
[46] NVIDIA, *State of AI in telecommunications: 2025 trends*, p 9.
[47] M Alduhishy, Sovereign AI: What it is, and 6 strategic pillars for achieving it, World Economic Forum, 25 April 2024, accessed 15 May 2025.
[48] World Economic Forum, *Artificial Intelligence in Telecommunications*, p 16.
[49] World Economic Forum, *Artificial Intelligence in Telecommunications*, p 17.
[50] GlobalData, Personal correspondence.
[51] World Economic Forum, *Artificial Intelligence in Telecommunications*, p 17.
[52] World Economic Forum, *Artificial Intelligence in Telecommunications*, p 16.
[53] Ericsson says that Open RAN represents 'a shift in the way to designing and deploying radio access network infrastructure in the telecommunications industry'. It involves disaggregating and opening up the RAN to enable more flexibility, interoperability and innovation, and includes 'cloudification / virtualization of the RAN hardware and software [and] open interfaces between the different parts of the RAN'. Ericsson, Open RAN (O RAN) [website], Ericsson, n.d., accessed 1 July 2025.
[54] D van Dyke et al, 2025 global telecommunications outlook, p 4.
[55] All mobile broadband systems are based on the International Telecommunication Union's International Mobile Telecommunications standards.

case, GlobalData states ‘AI RAN has many benefits for the telcos including potential new revenue generation’.[56]

- **Generative AI assistants** – TM Forum says that the next phase for generative AI assistants is ‘to become more interactive, with customers able to speak to their AI capabilities directly using natural language and engage in a more human-like conversation’. It suggests a further phase may involve more advanced AI assistants.[57]

Additional future outcomes include:

- **5G and 6G** – Using AI to generate additional revenue from 5G networks and support the development of 6G.[58] This includes the use of AI to improve the performance of mobile networks.
- **Agentic AI** – Agentic AI has been defined as ‘AI systems … designed to autonomously make decisions and act, with the ability to pursue complex goals with limited supervision’.[59] GlobalData noted that the potential of agentic AI for telco network automated operations is ‘huge’ and that ‘the generative AI component will make agentic AI easier to develop and to rapidly introduce multi-agent solutions’.[60]

An example of future agentic AI use in Australia

According to Arnab Chakraborty, co-lead of the joint venture between Accenture and Telstra, agentic AI will ‘create a next generation of autonomous AI systems coming in to empower humans’.[61]

Telstra’s head of autonomous networks and AI, Mark Sanders, stated the company's goal is autonomy, not simply automation.[62] Sanders notes Telstra is working with industry stakeholders to create operational relationships and forms of knowledge that can be used by both generative AI and agentic AI. ‘We want the network itself to act on the knowledge it’s got and decide the actions it needs to take’, Sanders said.

- **Quantum computing** – TM Forum says that ‘the developmental timeline for AI is on a collision course with that of quantum computing’ and it thinks it is likely that we will see the emergence of ‘quantum AI’ in the future. It says that the future of quantum computing has ‘potential use in telecoms network management … for network digital twins, planning and dynamic network optimization’.[63]

[56] GlobalData, Personal correspondence.
[57] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 46.
[58] NVIDIA, *State of AI in telecommunications: 2025 trends*.
[59] T Finn & A Downie, Agentic AI vs. generative AI, IBM, n.d., accessed 1 July 2025.
[60] GlobalData, Personal correspondence.
[61] J Wiggins, It’s like a marriage’: Inside Telstra and Accenture’s AI reinvention, Australian Financial Review, 12 May 2025.
[62] Staff reporter, Telstra lays out AI and autonomy strategy amid major architecture overhaul, Communications Day, 15 May 2025.
[63] M Newman, *Building an AI strategy: Telcos put the foundations in place*, p 48.

Australian developments

This section focuses on recent AI developments in Australian telcos. It begins with a summary of key themes, followed by a detailed table of public announcements made between January 2024 and May 2025.

Summary of Australian developments

AI integration

- Telstra, Optus, TPG Telecom and Superloop are integrating AI into their existing systems and workflows, embedding AI capabilities within core operations rather than treating them as separate tools.
- The current focus is on using AI to transform and improve customer services, workforce activities and business operations. Several strategic partnerships and investments have also occurred in the sector.

Customer services

- Tools like AskTelstra, Auto-Note (Telstra), Sally AI (Optus) and Teddy (Superloop) aim to improve customer interactions.
- AI is being used to summarise calls, provide instant answers, reduce handling time, divert traffic from human agents and help customers with tasks at home.

Workforce activities

- Tools such as Microsoft's Copilot being trialled or rolled out for staff (Telstra and TPG Telecom).
- External partnerships designed to broadly enhance AI skills of staff. Examples include:
  - Telstra partnering with Accenture to support teams working with agentic AI across business processes.
  - Optus partnering with Google and Anthropic to create AI tools that allow employees to access sensitive, internal data.

Business operations

- AI is being used in many ways in business operations, such as simplifying fibre design, improving internal processes, and improving logistics such reducing truck trips.
- Optus uses AI to detect scams in near real-time, while TPG Telecom uses different applications with AI to detect and identify malicious call and texts.
- Partnerships designed to improve business processes, such as Telstra partnering with Accenture to test a data platform using AI that could improve all aspects of its operations.

Strategic partnerships and investments

- Telstra has partnered with Microsoft and Accenture to enhance its AI capabilities.
- Optus is working with Google and Anthropic to develop AI tools like YesGPT and Sally AI.
- Macquarie is investing in data centres designed for AI to support future demand.

Developments in detail

The table below summarises AI initiatives by Australian telcos, providing dates and descriptions of each development.

Table 1: AI announcements

Company	Date	Announcements
Telstra	February 2024	**One-sentence summary** – summarises customer notes, interactions and transactions.[64] • Trials found 90% of Telstra staff saved time and were more effective in assisting customers when using the tool. • The tool reduced customer follow-up contact by 20%. • Telstra planned to deploy the tool across all contact centres and stores by the end of 2024. **AskTelstra** – uses generative AI to provide store staff information from Telstra's internal knowledge bases to answer customer enquiries.[65] • Trialled with 200 frontline staff in late 2023 – Telstra said it would be used in contact centres and stores by the end of 2024.[66] • Around 80% of the teams involved in trials agreed it had a positive impact on customer interactions. • Designed for reuse across other areas of Telstra such as human resources.[67]
	July 2024	**Process improvement** – Telstra said it aimed to 'improve 100% of [its] key business processes using AI' by 30 June 2025.[68]
	August 2024	**Microsoft Copilot**

[64] Telstra, Telstra scales up AI adoption following promising pilots of generative AI solutions improving customer experience [media release], Telstra, 7 February 2024, accessed 23 May 2025.

[65] Telstra, Telstra scales up AI adoption following promising pilots of generative AI solutions improving customer experience.

[66] R Pearce, Telstra completes roll out of AI-based 'AskTelstra' to frontline employees [news article], Communications Day, 19 August 2024, issue 6943, p 4, accessed 23 May 2025.

[67] R Pearce, Telstra completes roll out of AI-based 'AskTelstra' to frontline employees.

[68] D Stevens, Elevating data in the race to unlock the AI opportunity [company news], Telstra, 29 July 2024, accessed 23 May 2025.

Company	Date	Announcements
		• Telstra is rolling out around 21,000 licences for Copilot on Microsoft 365 applications across its workforce. This follows a successful trial of 300 Copilot licenses, where staff reported saving '1 to 2 hours per week' on organisational tasks.[69]
	March 2025	**Accenture and Telstra joint venture** • Telstra announced a joint venture with Accenture to further implement AI across its operations.[70] • Telstra's goals include reinventing business processes, improving productivity and enhancing AI skills across its workforce.[71] • Accenture will own 60% of the venture and Telstra 40%. • Telstra expects to spend $100 million annually for 7 years on the joint venture.[72] • Macquarie analysts said it is their understanding that most of the return on Telstra's $700 million investment will come from cutting costs rather than generating higher revenue.[73]
Telstra	May 2025	**Updates on AI** Telstra announced several updates on AI: • New strategy: Telstra launched a new 5-year strategy called Connected Future 30 aimed at transforming the company into a more focused, efficient and growth-oriented business by 2030.[74] • Future vision: Telstra goal is to be in the 'top 25% of global enterprises in AI maturity' by 2030.[75] Potential customers use cases that require strong uplink and

[69] Microsoft, Telstra and Microsoft expand strategic partnership to power Australia's AI future [website], Microsoft, 12 August 2024, accessed 24 March 2025.
[70] Telstra, Telstra and Accenture announce global AI joint venture [media release], Telstra, 15 January 2025, accessed 24 March 2025.
[71] Telstra, Telstra and Accenture announce global AI joint venture.
[72] J Wiggins, Telstra spends $700m on massive AI rollout, Australian Financial Review, 15 January 2025
[73] A Gillies & C Lam, Telstra – Downgrade: many happy returns' [research note], Macquarie Equity Research, 21 February 2025, p 1.
[74] Telstra, Connected future 30 strategy – investor presentation [pdf],Telstra, 28 May 2025, accessed 1 July 2025.
[75] Telstra, Connected future 30 strategy – investor presentation, p 5.

Company	Date	Announcements

		very low latency include augmented reality applications using AI for live image processing.[76]
		• Operational use cases: Telstra is using AI to improve efficiency. One example is reducing the need to send technicians out in trucks for on-site checks and repairs. By analysing power and site data before dispatch, Telstra has already cut these trips by 10%. The company also plans to use AI to simplify the fibre network design process for its fixed assets.[77]
		• Customer service tools using AI include:
		  • AutoNote summarises customers calls to call centre, saving 30 to 60 seconds of handling time.[78]
		  • Ask Telstra uses generative AI to instantly provide answers to customer service representatives.[79]
		• AI focus: Analysis firm Venture Insights said the new strategy focuses on enhanced connectivity and AI development. Venture said: 'Telstra aims to leverage artificial intelligence to enhance customer experiences and operational efficiency. The strategy is designed to address the evolving needs of customers in the AI era, potentially integrating AI-powered tools for network management, customer service, and new service offerings'.[80]

Telstra	May 2025	**AI hub** • Telstra has set up an AI hub in Silicon Valley to 'accelerate Telstra's foundational AI architecture'. This architecture 'will power AI use cases and unlock business intelligence,' including improving customer services operations. The hub is part of its Telstra's joint venture with Accenture and will draw on

[76] Telstra, Connected future 30 strategy – investor presentation, p 4.
[77] Telstra, Connected future 30 strategy – investor presentation, p 26.
[78] Telstra, Connected future 30 strategy – investor presentation, p 8.
[79] Telstra, Connected future 30 strategy – investor presentation, p 9.
[80] D Kennedy, Brief: Telstra's Connected Future 30 drives a new industry narrative, Venture Insights, 28 May 2025, accessed 1 July 2025.

Company	Date	Announcements
		expertise from companies such as Microsoft, Amazon and Databricks, as well as universities like the University of California.[81] • According to Tim Biggs of the Sydney Morning Hearld, the hub is also important for Accenture to test an AI platform it created with Nvidia, which Telstra will be the first to use.[82] Biggs writes that the platform 'will let Telstra use AI to crunch all the data (from customers and the wider industry) coming in from its network and then use it to improve all aspects of its business'.
Optus	July 2023	**Detecting scam messages** – Optus has increased its investment in AI and machine learning to detect and isolate scam text messages in near real time.[83]
	December 2024	**AI role appointment** – Optus has appointed a head of emerging artificial intelligence to lead its new AI division.[84]

	April 2025	**AI strategy**
		• Optus is using Google and Anthropic's large language models to develop a suite of AI tools.[85]
		• These tools include:
		  • Sally AI, a digital assistant that uses a customer's handset camera to guide home internet setup and similar tasks.
		  • YesGPT, a tool using Anthropic's Claude model that allows employees to use digital assistants and AI tools to safely access sensitive internal data.

[81] Accenture, Telstra and Accenture launch Silicon Valley hub to rapidly advance benefits of AI for Telstra customers and people [news article], 13 May 2025, accessed 23 May 2025.
[82] T Biggs, Tired of waiting on hold? Telstra thinks this might fix that problem [news article], Sydney Morning Herald, 14 May 2025.
[83] K Weber, Optus raises AI/ML investment in ongoing scam crackdown [news article], iTnews, 3 July 2023, accessed 24 July 2025.
[84] L Guan, Optus expands AI division with ex-CBA Jesse Arundell [news article], ARN, 12 December 2024, accessed 24 March 2025.
[85] R Pearce, Tech from Google, Anthropic underpins Optus AI strategy, Communications Day; D Van Boom, Optus turns to Google and Anthropic to power its AI strategy [news article], Capital Brief, 23 April 2025, accessed 1 July 2025.

Company	Date	Announcements

		• A platform co-developed with Google to help Optus run quality checks on responses from generative AI and customer service staff.
		• Optus is also exploring other projects involving AI that could:[86]
		  • open new revenue streams
		  • create personalised apps for customers
		  • provide management tools to reduce performance gaps between staff.

TPG Telecom	May 2024	**Microsoft Copilot** TPG Telecom is trialling Microsoft Copilot to give staff faster access to information and support staff who need to build large data sets for analysis.[87]
	April 2024	**Updating systems to support AI** TPG Telecom is ensuring its data estate and architecture can support AI before implementing it more widely.[88]
	September 2024	**CallShield and SpamShield** • TPG Telecom is using Mavenir's CallShield to reduce automated and deepfake fraud calls and Mavenir's SpamShield to block fraudulent SMS.[89] • Both applications use AI and machine learning to detect and stop malicious call and texts.
	October 2024	**Cyber Centre of Excellence** • TPG Telecom has opened its Cyber Centre of Excellence in Sydney.[90]

[86] R Pearce, Tech from Google, Anthropic underpins Optus AI strategy; D Van Boom, Optus turns to Google and Anthropic to power its AI strategy.
[87] E Dickinson, TPG Telecom makes enterprise data searchable with Copilot trial [news article], iTnews, 10 May 2024, accessed 1 July 2025.
[88] R Crozier, TPG Telecom is uplifting its data estate [news article], iTnews, 11 April 2024, accessed 19 May 2025, accessed 1 July 2025.
[89] Mavenir, Australia's TPG Telecom taps Mavenir to boost voice security for mobile users and block AI-driven scam calls [media release], Mavenir, 10 September 2024, accessed 24 March 2025.
[90] R Crozier, TPG Telecom brings red and blue teams, partners under cyber CoE [news article], iTnews, 29 October 2024, accessed 19 May 2025.

Company	Date	Announcements
		• Part of its work involves testing AI and machine learning to detect SMS phishing on TPG's network. • The centre developed an algorithm that distinguished between legitimate and malicious messages with 95% accuracy when tested on a sample dataset.
Superloop	February 2025	**Teddy the AI assistant** • Superloop has launched an AI assistant called Teddy, which uses a large language model interface.[91] • Management reported Teddy has diverted significant chat volumes from customer service staff while maintaining customer satisfaction. **Sentiment analysis** • Superloop is also investigating the use of AI for sentiment analysis and to assist with network issues.[92]
Macquarie Technology Group	February 2025	**Data centre development** • Macquarie is investing data centres to help meet the demand from AI and cloud services.[93] • Macquarie began building the IC3 SuperWest data centre in July 2024. It will supply up to 47 megawatts of power.[94] • Construction is scheduled for completion in September 2026.[95]

[91] P Tyler, Superloop Limited: FQ2 2025 earnings call transcripts, S&P Global Market Intelligence, 20 February 2025, p 10.

[92] P Tyler, Superloop Limited: FQ2 2025 earnings call transcripts, p10.

[93] Macquarie Technology Group, 2024 annual report [annual report], Macquarie Technology Group, 26 February 2025, p 6, accessed 24 March 2025.

[94] Macquarie Technology Group, 2024 Annual Report, p 5.

[95] Macquarie Technology Group, 2024 Annual Report, p 25.

AI and resilience

Reliable telecommunications networks are critical for emergency response, business continuity and national security. This section examines how AI can improve resilience and recovery.

How can AI support network recovery and resilience?

Global perspective

The Organisation for Economic Co-operation and Development notes AI and machine learning can help make networks more resilient in several ways.[96] For fixed and mobile broadband operations, AI can:

- contribute to incident prevention and predictive maintenance
- improve digital security features
- recommend strategies to boost resilience
- predict the impact of changes
- increasingly manage autonomous responses to changes.

AI and machine learning combined with software-defined networking can also predict and detect network issues early, enabling dynamic reconfiguration during disruptions.[97] Software-defined networking uses software-based controllers or application programming interfaces to route traffic on a network, improving resilience.

Australian initiatives

Several Australian telcos have announced projects using AI to support network resilience:

- NBN Co continues to explore new technology, including AI, to support network innovation.[98] This includes looking at the role generative AI could play in improving reliability, 'better enabling the company to tap into its extensive network data' to strengthen 'network resilience plans'. As part of its service improvement plans, the company has also said that it is committed to automating 'network management operations supported by artificial intelligence, especially for fault recognition, with the aim of creating an "intelligent, self-healing network"'.[99]
- Telstra CEO, Vicki Brady, has said that to deliver customers a more advanced 'resilient and reliable 5G mobile network', the company is extending its 'partnership with Ericsson to … move towards autonomous self-healing networks'.[100] This involves, she says, 'implementing AI and automation to optimise network management'. She has also said of the partnership with Accenture that it will help deliver 'the best possible customer experiences' and that the more Telstra can build resilience by applying AI technology to its network, the better its competitive advantage will be.[101]

[96] Organisation for Economic Co-operation and Development, Enhancing the resilience of communication networks, OECD digital economy papers, no. 374, May 2025.
[97] OECD, Enhancing the resilience of communication networks.
[98] NBN Co., Annual report 2024 [pdf], NBN Co., n.d., accessed 1 July 2025.
[99] NBN Co., NBN Co focuses on speed and reliability in annual service improvement plan [media release], NBN Co., 9 November 2023, accessed 1 July 2025.
[100] V Brady, Telstra Group Limited: H1 2025 Earnings Call [transcript], S&P Global Market Intelligence, 20 February 2025,
[101] J Wiggins, Telstra boss: no hangups with $700m AI deal as it will help solve outages, Australian Financial Review, 16 January 2025.

Intelligent networks

The concept of an ‘intelligent network’ appears to be a common approach across the telco sector. For example, T-Mobile in the United States has deployed technology to support disaster response and recovery.[102] Its ‘enhanced self-organising network’ can ‘self-heal and adapt in real time’:

- If a cell tower fails, a self-organising network automatically adjusts nearby sites by tilting antennas, increases power and reroute signal to maintain coverage.
- It redistributes network traffic to prevent backup sites from becoming overloaded, helping preserve reliable service even when strained. When commercial power fails, a self-organising network conserves energy by shifting spectrum use to extend generator and battery life.

It was also reported that T-Mobile has integrated an AI-powered alert system into its command centre and that this system ‘scans vast amounts of public data … to detect emerging events and provide early alerts for severe weather, infrastructure risks and emergencies’. This allows T-Mobile the chance to deal with threats faster and ‘respond more effectively to protect network operations’.

[102] Business Wire, Ready for anything: T-Mobile strengthens powerful technology arsenal for hurricane and wildfire seasons [news article], Business Wire, 1 May 2025, accessed 1 July 2025.

Glossary

Artificial intelligence (AI). Computer systems that perform tasks normally requiring human intelligence, such as learning, reasoning and problem-solving.

Agentic AI. AI systems designed to autonomously make decisions and act toward complex goals with limited supervision.

Analytics-as-a-service. A cloud-based service that provides data analysis using AI and other tools, often combining telco data with third-party inputs.

Autonomous networks. Networks that operate with minimal human intervention, using AI for self-optimisation and self-healing.

Communication service provider (CSP). A company that owns or operates telecommunications infrastructure and may also be involved in the operation or delivery of digital networks and platforms.

Generative AI. AI that creates new content, such as text, images or code, based on patterns learned from data.

Generative AI assistants. Tools that interact with users in natural language to provide information, answer questions or perform tasks. These assistants use generative AI to create responses rather than relying on pre-programmed scripts.

Large language model. A type of AI model trained on vast amounts of text data to understand and generate human-like language. Large language models can perform tasks such as answering questions, summarising text and creating content.

Machine learning (ML). A subset of AI that uses algorithms to learn from data and improve performance over time.

Radio access network (RAN). The part of a mobile network that connects devices to the core network.

AI RAN. A radio access network enhanced with artificial intelligence to optimise operations and improve performance, building on Open RAN principles.

Self-organising network. A network that automatically adjusts and optimises its configuration to maintain service quality.

Software-defined networking (SDN). A network architecture that uses software-based controllers or application programming interfaces to manage traffic dynamically.

Sovereign AI. AI developed and controlled within a nation to protect strategic interests and ensure data sovereignty.

Traditional AI. AI techniques that have been used for many years, such as machine learning and predictive analytics. Traditional AI focuses on analysing structured data to make predictions or automate processes, unlike generative AI, which creates new content.