

## AI in networks: Top 10 themes

This year it has been nigh impossible to discuss network transformation without discussing the role of AI. In this article we summarise the ten key themes discussed at three Futurenet panels on AI in networks<sup>1</sup>.

George Glanville, Analyst

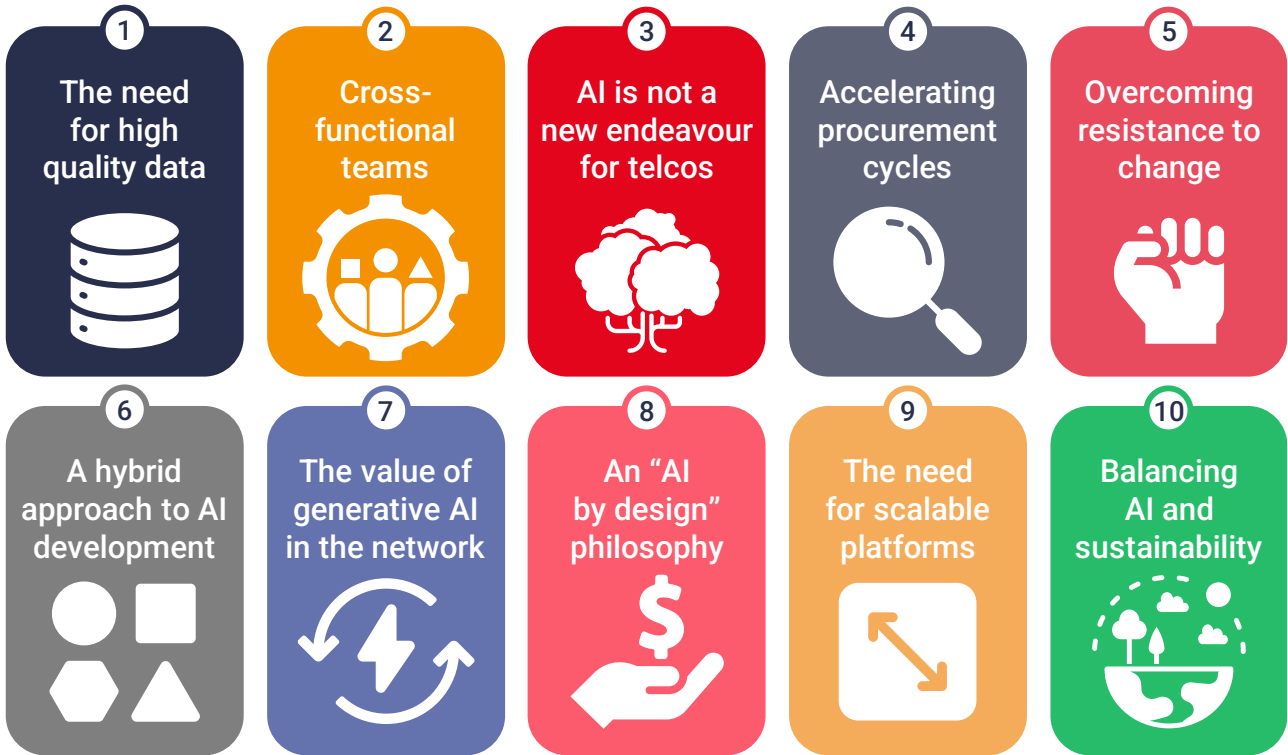
---

<sup>1</sup> This article is based on three Futurenet panels:

- Keynote Panel: [AI in Networks: Cutting through the hype](#) – Futurenet MENA, 15.05.2024
- Keynote Panel: [AI in Networks: Cutting through the hype](#) – Futurenet World, 16.04.2024
- Webinar: [AI in Networks: Getting beyond the hype](#) – Futurenet World Webinar, 08.02.2024

Spurred by an interest in generative AI, the integration of artificial intelligence to improve or automate processes has dominated the discourse in telecoms, and there is a general recognition that the network is where AI, of any type, will have the most impact financially. Whether the focus has been on use cases, governance, tooling or development, AI has been a recurring topic of conversation throughout 2024.

**Figure 1: The top 10 themes dominating the AI in networks discussion**



Source: STL Partners

## 1. “No data, no AI”

Fundamentally, AI is only as good as the data it has at its disposal. Without access to high-quality data, built upon robust data architectures, telcos will be unable to leverage AI applications.

This strategic imperative has encouraged telcos into breaking down data silos in order to build centralised data repositories, e.g. data lakes or data meshes. Telcos must pursue this fundamental step before they can meaningfully extract value from AI solutions. For example, [Globe Telecom](#) partnered with AWS to migrate its all of its customer data onto a singular platform, from which it was then able to build AI models that derive far richer customer profiles.

While the move of IT workloads to the cloud has somewhat accelerated parts of this process, many telcos have outlined the difficulty in centralising data that is managed by external entities, such as SIs; in this scenario telcos need to ensure there is alignment across partners on the value of centralising this data.

The importance of data to AI has also brought up the issue of its governance within the organisation. Telcos must address key questions concerning who owns the data (e.g. the network team v. chief data officer) and who is responsible for its management, including critical quality checks to ensure data is being ingested correctly.

## 2. Telcos must embrace cross-functional teams

When it comes to the development of AI solutions, telcos must break down departmental silos in favour of cross-functional teams that can tackle development with a holistic view of the task. For example, when implementing AI in the domain of network planning, solutions must be built with more at mind than just data on the technical requirements of the network. Data pertaining to the nature of customers in the area, the presence of enterprises, the SLAs they need to meet, or device trends, all need to be integrated within the model.

These cross-functional teams can be comprised of data scientists, AI experts, network teams, enterprise teams, etc. STL Partners details the importance of cross-silo work practices in our report, [Breaking down silos for telco adaptability](#).

## 3. Integrating AI in networks is not a new endeavour for telcos

The wave of AI hype sparked by the development of generative AI makes it feel as if AI is the new kid in town for telcos. Most telcos have been building up AI expertise for 10+ years and have developed many mature applications. For example, Telefónica has been using AI models to forecast network traffic and customer satisfaction since 2015.

Triggering this initial adoption of AI in the network by telcos has been not only the need to drive greater efficiencies, but importantly to prepare for the growing complexity of network management.

## 4. Telcos need to accelerate procurement cycles

The traditional 9-to-18-month telco procurement cycle is far too slow to keep up with the fast pace of AI innovation. If telcos are to maximise the benefits of AI, they must adapt this process, condensing the time spent training and trialling such that they can adopt the latest AI technology in a timely manner.

Vendors are recognising the need for increased telco agility and subsequently have started to offer pre-trained AI models, or even solutions to build, train and operate bespoke LLMs for telcos. For example, Amdocs with its [amAlz Platform](#) has created a platform enabling telcos to develop and deploy generative AI solutions swiftly.

## 5. Telcos need to overcome resistance to change

Embedding AI across the organisation requires telcos to undergo a fundamental cultural change. AI is disrupting traditional methods of work, and telcos must ensure employees understand the need for this change. Without fostering an environment where employees embrace AI, telcos will not be able to fully harness its potential.

It is important to note that this is not an overnight process, telcos must take time to reskill employees such that they are comfortable with this fundamentally different way of working. For example, to onboard specialist AI and ML skills, [Telenor](#) embarked on a three year programme with Udacity to upskill over 700 employees.

To lead this change, some telcos have created an AI board, setting out a vision for the integration of AI which can permeate across the organisation. This is the case of TELUS, who last year established an AI board of which its CEO is a member.

## 6. Telcos are adopting a hybrid approach in AI model development

In developing AI models, telcos are taking a balanced approach between acquiring third-party solutions and developing solutions in-house. In many cases it is unviable for telcos to develop AI models themselves, particularly when it concerns LLMs, or indeed the creation of foundational AI tools (of which many are available open source). There are, however, instances where telcos must take a far more involved role, for example when creating custom-models that are adapted to more specific AI use cases. This is the approach adopted by KT, who has developed its own LLM, named **Mi:dm**, to enable B2B generative AI services such as complex document processing. However, alongside this proprietary model, KT has also **partnered with AWS** in order to bolster its service portfolio with AWS's generative AI solutions.

Telcos must also consider the strategic imperative to avoid vendor lock-in. Hence, developing in-house AI capabilities helps to alleviate this risk.

## 7. Generative AI will drive significant value within the network

Although the deployment of generative AI in the network is comparably nascent to domains such as customer service, as illustrated by our **Telco generative AI adoption tracker**, the potential value of these solutions is significant. AI is already driving greater reliability, energy efficiency, automation and control in the network, and the addition of generative AI will greatly amplify these gains. One application of generative AI in the network is the holistic view it can provide network engineers. For example, when a fault arises in the network, e.g. a card failing at a Dense Wavelength-Division Multiplexing (DWDM) node, a network engineer can ask a generative AI assistant to locate where this fault is occurring and then summarise process documentation to provide clear steps on what actions need to be taken; this is a use case Microsoft is commercialising through its **CoPilot in Operator Insights** service. Of note also is the fact that telcos are treating the implementation of generative AI in a similar way between their fixed and mobile networks.

Indeed, the core challenge to bringing these use cases into fruition lies in breaking down data silos in order to build generative AI applications with a horizontal view of the network.

## 8. From “automation by design” to “AI by design”

Where in the past telcos spoke often of an “automation by design” philosophy, we are now seeing telcos embrace a new philosophy of “AI by design”. Any new system, process, or tool needs to be conceived with AI in mind, looking from the outset to how AI can both aid the development process and improve the product itself. It is not sufficient to try retrofit AI onto new products, if telcos are to truly embed AI within their organisation, they need to include AI in their approach to any new task.

Likewise, an “AI by design” philosophy requires telcos to inject AI as deeply as they can into the network, for instance, within the network elements of the RAN. By integrating AI at this granular level of the network, telcos can fully reap the rewards of the improved network management and optimisation AI enables. Indicative of the benefits of deeply embedding AI within the network is the case of **Sunrise Telecom** who has estimated that the implementation of its AI-powered energy management software, Powerstar, throughout the RAN, has reduced the total energy usage of its mobile networks by more than 10%.

## 9. The need for scalable platforms

As telcos start the process of integrating AI into network operations, they need to ensure that they are building AI applications and models on platforms that can provide sufficient scale. Telcos need to establish a robust AIOps platform such that they can aggregate siloed IT operations data, teams and tools into a single platform.

Whether the telco is utilising off-the-shelf AI solutions, in-house products, or both, they need to be able to onboard, manage and monetise them on a unified platform, providing a single plane of glass view. Without this, telcos will find themselves with siloed AI applications that create significant operational complexity. Indeed, Orange has **partnered with Google** such that it can bring the Google Distributed Cloud environment into its own data centres, onto which Orange can deploy a range of scalable AI services, including generative AI services powered by Google Vertex.

## 10. Putting the AI in sustainability

AI can play an instrumental role in supporting telcos on their transition to net-zero. Notably, AI can support more sustainable networks by enabling self-healing and optimisation, which are processes that can capture substantial improvements in energy efficiency. For example, **Rakuten** recently demonstrated that by integrating AI models into the RAN Intelligent Controller (RIC) it could enable energy savings of up to 25% in the RAN due to optimised antenna configuration.

However, AI is a double-edged sword, and telcos must also acknowledge the damage it can potentially inflict on the environment. This is particularly the case with generative AI, which **empirical research** suggests can use 33 times more energy than machines running task-specific software. Therefore, telcos must find a balance between pushing the boundaries of AI capabilities while ensuring they don't undermine their core sustainability values; this is a topic we explore further in our recent article, "**AI: Sustainability friend or foe?**".

**George Glanville is an Analyst at STL Partners.**

Get in touch with the author to learn more

[george.glanville@stlpartners.com](mailto:george.glanville@stlpartners.com)

Or visit STL Partners' Network Innovation Hub

<https://stlpartners.com/network-innovation/>