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Can Generative AI Become the Saviour of the Telecoms Industry?

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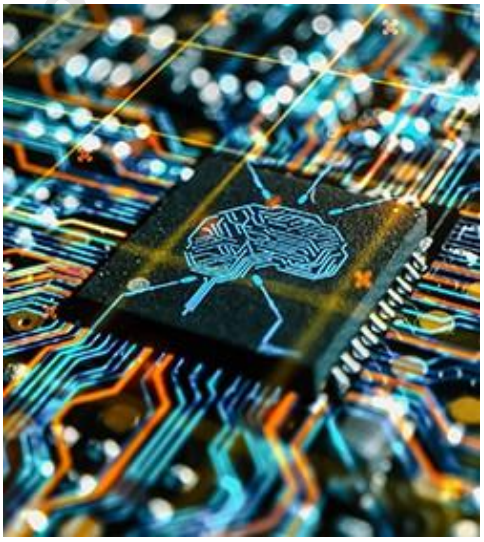

At this year's Mobile World Congress, it was clear that artificial intelligence, AI, was the hottest topic in the industry right now, leaving cloud, non-terrestrial networks, quantum computing, private 5G and even 6G "in the dust." However, can the industry make the leap from using AI to improve productivity to making AI a major revenue stream?

There is a need for the industry to transform itself and move the major players from telcos to techcos to enable them to benefit from all the new opportunities linked to AI and other emerging technologies. The GSMA predicts that the telco industry will be worth $1.5 trillion by 2030, but that AI technologies will contribute a massive $15 trillion to the overall global economy by the same time.

Predicting the future can be incredibly difficult. In this article, however, we summarize viewpoints from a number of industry leaders on why they believe that telcos (and the wider telecoms industry) should be part of the AI race.

Where is AI Today?

Kathleen O'Reilly at Accenture reminded us that AI isn't new to the telecoms industry as a whole and that Generative AI (GenAI) is only the latest development in a continuum which started with "Diagnostic AI," and then "Predictive AI." Diagnostic AI is used throughout network operations today to improve network performance, carry out root-cause analysis, and other complex operational analytical functions. Predictive AI takes a forward-looking approach to analysis and can be used to understand and prevent future events. A good example would be understanding when a customer calls or messages a contact center what they are calling about or how likely they are to want to cancel their service. This can be used to improve customer experience (CX) and retention within the industry.

Accenture believes AI will contribute 10 percent top-line growth, and 70 percent of IT organizations

will be impacted by GenAI. They also state that 95 percent of workers believe that GenAI can improve work, but don't trust the technology. Ultimately AI will have a huge impact on the industry, but there are also major trust issues about its implementation. The following are industry viewpoints about AI from leading companies in the field:

SK Telecom: *the Rise of Telco LLMs*

South Korean operator SK Telecom's Chief AI Officer, Mr. S G Chung, spoke about the two key methods in which AI would impact their business. Firstly, AI is a key tool for improving cost efficiency. With saturated markets globally and limited revenue growth, a focus on the reduction of operating costs is obviously a key focus for many CSPs. SK Telecom believes that AI, and in particular GenAI, can be a key driver for contact center efficiency. The ability to accurately record and summarize conversations with customers, provide guidance, and resolve complaints, not only offers the opportunity to reduce OPEX but also to improve customer experience. Secondly, they see GenAI driving new business models using AI assistants.

SK Telecom highlighted that for them a key tool to drive this transformation is the introduction of a telco-specific Large Language Model (LLM), and to this end they announced the formation of the Global Telco AI Alliance with DT, Singtel, e&, and Softbank collaborating to create their own telco LLM looking to accelerate the use of AI within the industry. They believe that this telco LLM will deliver improved AI performance (accuracy), improved time-to-market, and optimized cost-effectiveness. They also believe a telco-specific LLM is better able to address the needs of the industry than some of the generic LLMs used today.

Ericsson: *Open, Programmable High-performance Networks of the Future*

Elena Fersmann, VP and Head of Global AI Accelerator, took a slightly different view regarding the role of AI in networks of the future. She pointed out that both Diagnostic and Predictive AI are already ubiquitous lower in the technology stack, and that GenAI is harder, but not impossible, to deploy at the network level. However, the Ericsson view is that in the future AI plus Network plus Cloud will be an unstoppable combination in delivering the open, programmable, high-performance networks upon which we will rely. Achieving this in reality will require 1) trustworthy AI, 2) flexible models, and 3) ecosystems and partnerships capable of delivering specific use cases.

One of the challenges noted by a number of organizations talking about AI is the need for partnerships and ecosystems, and unfortunately the generally poor track record within the industry, particularly with CSPs, of successful partnering models.

BT: *Unlocking the Human Potential of AI*

BT Group's CDIO and Vice-Chair of the TM Forum, Harmeen Mehta, took a very "bullish" outlook regarding the short-term impact of AI on their business. She noted that BT already has 90 percent of their data in the Google Cloud (GCP) and that they expect AI to provide a 25 percent productivity increase by 2026, valued at over £170

million. BT took a very pragmatic view of GenAI, and instead of embracing the concept of a single telco specific LLM as proposed by SK Telecom and Global Telco AI Alliance, very much took a "horses for courses" approach of using multiple LLMs connected via an LLM gateway, citing Anthropic, AWS,

Open AI, and Foundry as target LLMs. They certainly didn't advocate creating their own LLM, as suggested by Ericsson. However, it's easy to see that BT's strategy would enable them to use telco specific LLMs when they become available.

BT's AI vision is ultimately pragmatic. AI is here for three reasons: 1) to get things done, 2) to improve service, and 3) to increase sales.

What I like about BT's approach is its focus on using AI to do things. They are focused on the use cases supported by the technology rather than taking a more esoteric view of AI for AI's sake.

Vodafone: *AI is so Yesterday!*

Vodafone's Group CTO, Scott Perry, professed that AI is not a future technology, but is something already in use across the Vodafone organization today. He stated that Vodafone currently had over 600 AI use cases and over 200 AI processes active today. This statement very much supports the idea that diagnostic and predictive AI technologies are ubiquitous, even though LLM based GenAI is not as widespread. Scott divided AI into three clearly defined domains: productivity tools; transformational functions; and new business.

Vodafone is actively using AI productivity tools throughout its business operations. They are using various Microsoft Co-pilot tools with Office 365 for activities such as legal contract searches and improving RFP responses. While these may not be the most glamorous use cases, the productivity improvements and time saving can be measured in thousands of hours.

With CX one of the key differentiators for any service provider it isn't surprising to see Vodafone using AI to transform their customer services operation around the concept of customer care "super agents" who have AI tools to improve experience *and* reduce time and cost to serve. A similar, DevOps approach is being used with AI to improve software quality within the business.

Interestingly, Scott was more vague concerning the use of LLMs, stating merely that they expected to support more than one LLM for any GenAI tools, functions and use cases. Their vision is for a flexible architecture that allows them to swap between different LLMs based either on use case or what is "best in class."

Their approach to use of humans within the business very much links to the evolution of the technology and increasing trust in AI over the time. The three models they see are:

- Human in the loop (open loop).
- Human on the loop (semi-closed loop).
- Human out of the loop (closed loop).

For Vodafone, AI is a major business enabler and a technology they are already wholeheartedly embracing.

DT: *The AI Future is Magenta and Green*

DT's Global CTO, Abdu Mudesir, also spoke about the fact that AI was already ubiquitous within the company. DT, who is also a key player in the Global Telco AI Alliance, is using AI and machine learning (AI/ML) technologies in three interesting ways: 1) AI-powered customer service, 2) AI-enhanced network rollout, and 3) AI-driven sustainability.

DT currently offers an AI-powered service, "Frag Magenta" (Ask Magenta), to assist customer

questions and improve service levels. They are also using AI-enhanced technologies to improve their fiber rollout in Germany, both as a way to improve CX and at the same time reduce the OPEX and TCO for the network. Improving CX, increasing retention and overall customer lifetime value, and OPEX/TCO improvements, have a positive impact on profitability. If successful, these approaches will be copied around the globe.

Possibly the most interesting use of AI by DT, however, is in the "Green Tech" and sustainability space. AI can be used to reduce the power and carbon footprint of telco networks, which already account for 4 percent of global emissions today. Their results from this program are impressive, saving 16 GWh in Germany and 20 GWH in the rest of Europe. Based on today's energy prices of around 40.70 cents per kilowatt, that saving in Germany is worth around €6.4 million. With high global energy prices this type of AI use case can provide huge savings for CSPs.

IBM: *Using AI to Streamline Customer Experience and Workflows*

IBM, according to Rich Sarcomo, Partner in IBM Consulting, isn't a new entrant to the use of AI in communications. In fact, the Watsonx platform launched in 2016 has been driving change and innovation within the industry for the last seven years.

However, the introduction of GenAI has further accelerated adoption within the industry, driving new use cases particularly in call centres, customer care, and field service areas which are typically manpower intensive operations. Much of the productivity improvements IBM has seen have been based on the concept of "intent," understanding what the customer wants. At the front-end, well-trained chatbots can complete 70-80 percent of tasks with AI's either completing tasks entirely or understanding when to deflect them to human advisors. The deflection to human agents is accompanied by the full context of engagements so that service agents have the knowledge required to complete the task without re-asking for information. In addition, the asynchronous nature of such engagements particularly suits the younger "millennial" customers.

To understand why GenAI is so effective in managing customer engagement you need to understand that legacy automated workflows required a "hard-coding" of the process, which made changes to policy and processes slow to implement. With GenAI you can effectively say, "Read the manual," and direct the AI to utilize the current policy for billing upgrades or change of address or any other of the numerous tasks a customer may want them to perform. A change of the published policy effectively then changes the workflow without any additional coding changes required. While it sounds simple, its impact on CSP business is huge. The use of AI agents and the use of AI-assisted human agents impacts the business by:

- Reducing handling time.
- Improving first call resolution.
- Improving overall CX/NPS.
- Avoiding swivel-chair operations.

Today, IBM sees AI being added to current processes and workflows. In the future, however, these processes and workflows will be built around AI. AI is such a powerful tool it shouldn't be constrained by the limits of existing processes. With AI you have to re-imagine the process.

IBM is already seeing AI use cases improving net promoter score (NPS) by 15-20 percent, but one of the major concerns is that of governance and data privacy. A service provider's private data shouldn't be used to train public models, and within the telco domain AI needs certain "guardrails" and responses.

One of the problems that AI is already helping with is an ubiquitous challenge for service providers, which is: "If I have an outage, and the customer hasn't yet noticed, do I tell them?" IBM has developed an AI solution that identifies which customers are most likely to call and targets them with proactive communication, whereas customers unlikely to call are not.

Netcracker: *Learn to Walk Before you Run, but Don't Wait to Take the First Steps*

Sue White, Head of Strategy & Portfolio Marketing at Netcracker, pointed out that "GenAI has taken all industries but in telecoms the challenge is how to add meaningful telco data." This is the challenge that Netcracker has addressed with their GenAI Telco Platform launched in 2023.

To effectively use AI in the telco domain you must be able to support multiple models, manage proprietary telco data, and utilize secure user data. Service providers need to have a flexible AI model strategy that allows them to use multiple models, including common public models, and potentially some of the emerging telco specific LLMs being developed. Whatever service providers do they must have flexibility over model choice and the ability to add new models as they become available. Service Providers will strongly resist any attempts at "vendor lock-in" in AI. Another important factor for service providers is data quality. Telecom networks are complex and dynamic, and using AI in the telecom domain needs access to high quality, accurate, real-time data from the BSS, OSS and Network. This data together with instructions augments AI model training to give higher quality responses. The challenge is that for many service providers the real-time data issue has still not been fully resolved. Finally, service providers have to be able to manage data security. Individual customer data can't be accessible in public AI models. Data has to be anonymous and obfuscated in all directions to avoid damaging data breaches.

Netcracker sees an almost ubiquitous deployment of GenAI in the BSS layer today to assist with customer service, resolve queries, and automate catalog configurations, but they also expect GenAI to generate significant use in the OSS and Network layers to address issues such as configuration management, network assurance, fault resolution, and data cleansing. In fact, their expectation is that GenAI driven operational applications will be a major growth area. The early use cases will be relatively simple, but as the technology progresses AND service providers complete their digital transformation of the BSS/OSS to provide real-time capabilities, we will see more and more complex and powerful use cases being deployed.

Netcracker has already publicly announced the deployment of the GenAI Telco Solution with T-Mobile USA, who plans to use the technology to provide a better experience to its partners in its wholesale business.

ENEA: *Don't Forget GenAI can also Create Security Risks in the Network*

For ENEA's VP of Technology, Cathal McDaid, AI and GenAI, create a number of new cyber security concerns. Like many industry leaders, ENEA can see huge opportunities with AI, but of course these come with new risks. We are already seeing the use of AI/GenAI in criminality. The ability of AI to create voice fakes, video fakes and image fakes has the potential to make anything we do online less safe. ENEA believes that to generate the benefits of AI within telecoms it is also incumbent on the industry to improve security. One approach is to introduce deep packet inspection, DPI, into many

processes. They also believe that Quantum computing, at a nascent stage, will bring even more threats, and that future telecom networks must be "Quantum security ready.

Security needs to be improved in four main areas: signalling security; voice security (spoofing); infrastructure; and 5G rollout. Globally, telecom regulators need to be doing more to encourage future-thinking and thought leadership in telecom security. Many countries consider their fixed and mobile networks as "Critical National Infrastructure" (CNI), but think that not enough is being done to protect those networks. Another major consideration is around the Wi-Fi infrastructure in homes and offices. Currently around 80 percent of 4G traffic is offloaded over Wi-Fi networks, but those Wi-Fi routers and infrastructure are routinely ignored. Security must be end-to-end.

Amdocs: It's all about Training and Efficiency

Yaron Sverdlov, Service Group CTO at Amdocs, explained more about the introduction of amAIz as their Telco GenAI solution. amAIz is not another large language model (LLM). It is a "context aware platform supporting multiple LLMs, with security and a studio for developing use cases." Effectively, amAIz is an AI platform trained for the telco context.

According to Amdocs, the aim of amAIz is two-fold. Firstly, to improve productivity, what they call: "doing what you do today better." And secondly, its aim is to "enable service providers to do new things," using what they call "sentient analysis."

Amdocs is customizing existing enterprise LLMs using NVIDIA-accelerated computing. They are collaborating with both NVIDIA and Microsoft to produce aTelco GenAI Platform. However, they stressed that this development requires considerable investment in people and skills with new capabilities such as data science, LLM training, and prompt engineering being some of the new skills required to work in the GenAI domain.

Rocks in the AI Road

We've seen that the industry expects AI to have a huge, transformational impact on the industry. But what could go wrong? The telco industry is hugely pragmatic and cautious about the "next best thing in technology" and its true impact. The industry is keen to highlight that there are a number of issues that could impact AI having the expected transformational effect. These included:

Doing things differently – If you adopt transformational technology, you must also transform your culture, staff, and processes to maximize impact.

The art of partnering – The industry doesn't always partner well and the ability to create true "win-win" partnerships is necessary.

Skills gaps – AI requires new jobs and skills sets. There is a requirement to train, retrain, and hire new staff to maximise the impact of AI. Do you have enough "Prompt Engineers"? Do you even know what a "Prompt Engineer" is?

Democratization of IT – In an AI future the IT organisation can't be the bottleneck in the process. It needs to provide "guard rails," tools, and architecture, but also to allow other users to build products and services using AI.

Expect the AI bubble to burst – AI and GenAI is at the top of the "hype cycle" today. Service providers should expect to experience challenges and let-downs as they implement these technologies.

Don't overthink implementing GenAI – Many service providers are reluctant to experiment and may want to wait until the technology is mature before trying it themselves. GenAI can have huge impacts on productivity, and this gives first-movers a clear advantage. In other words, don't wait too long to adopt the technology.

Security – How do you control access to the model? How do you prevent model poisoning? And how do you prevent private data being accessed through open public models. For GenAI to be successful, data must be secure and data breaches prevented.

AI combined with the power of the network will be immensely powerful. This combination puts telcos or CSPs in a strong position to take a leading role and benefit from the $15 trillion AI market. But change is hard, and not everyone will be able to make that transformation.