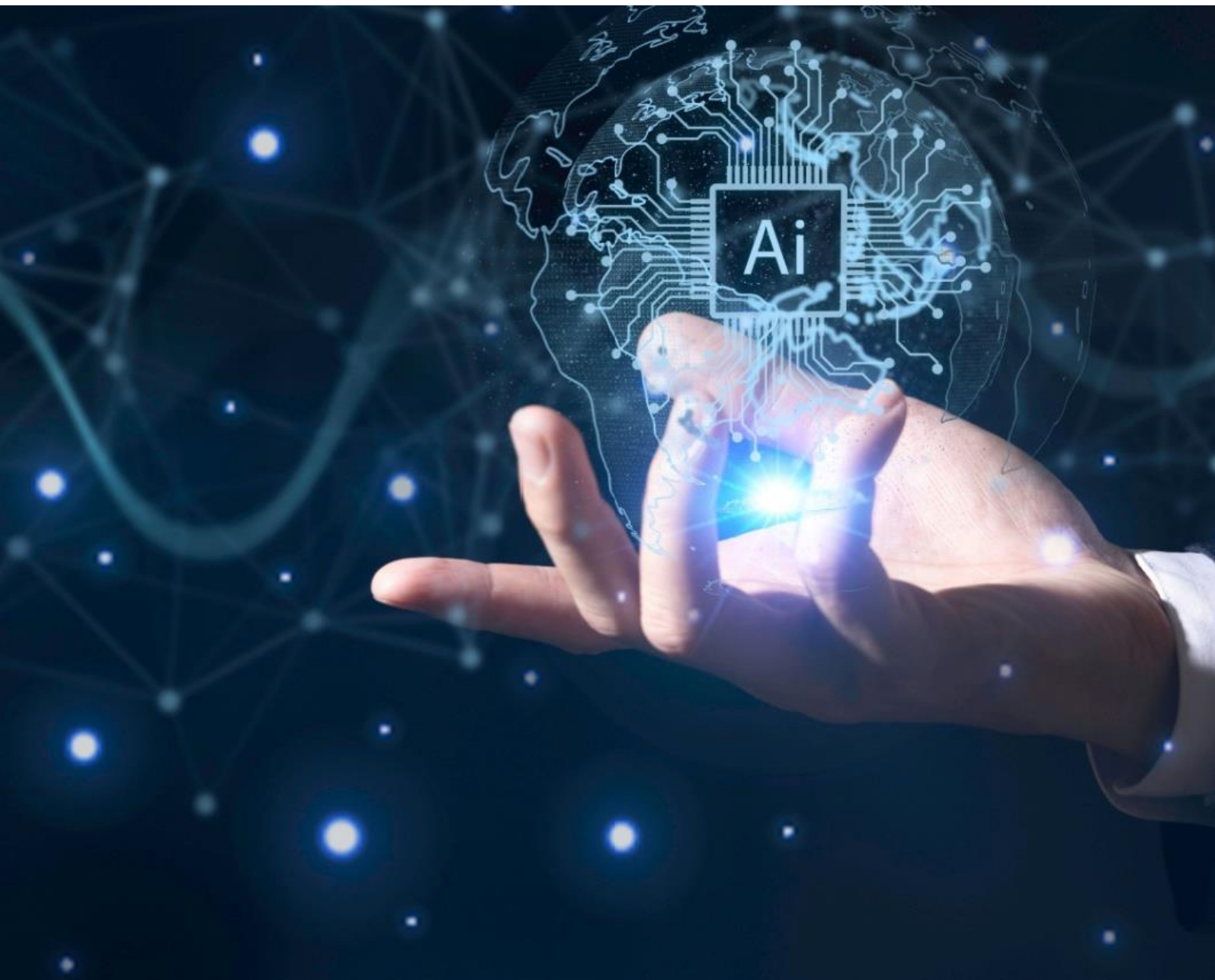


Generative AI in Telecom and Media

June 2024



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Generative AI – An Overview

- A type of artificial intelligence that can create content in the form of text, images, audio, video, and code.
- Generative AI models are trained on large datasets of existing content, and they have learned to identify patterns and relationships in that data.
- Uses neural networks (a computational model composed of interconnected nodes, neurons, organized in layers, which processes data by learning patterns through training on labeled examples to perform tasks such as classification and regression) to identify the patterns and structures within existing data to generate new and original content when prompted.



Market Potential

- **US\$ 2.46 Bn** – The revenue that generative AI technology offerings in the telecommunications sector is forecasted to reach by the end of 2030, with a **CAGR** of approximately **42%** for the forecast period from 2023 to 2030.



Key Growth Drivers






- **Network Optimization:** Generative AI can optimize networks by predicting traffic, preventing congestion, and recommending efficient routes, enhancing resource use and user experience.
- **Tailored Services:** It can tailor services and content by analyzing user behavior, creating customized offerings such as service packages, marketing campaigns, and recommendations.
- **Enhanced Efficiency:** It can also drive telecom industry's overall growth by enhancing efficiency, minimizing downtime, targeted marketing, and introducing new services, leading to cost savings and increased revenue.



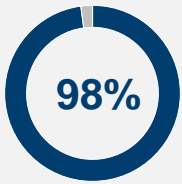
Key Trends

- **Increased Adoption Across Industries:** Generative AI is being increasingly utilized across industries, including healthcare, manufacturing, and entertainment, to innovate products and services.
- **Migration to Cloud:** Cloud adoption can facilitate easier and more affordable access to generative AI tools, driving the usage of these tools.
- **Need for Ethical Guidelines:** Emerging ethical guidelines are essential for ensuring responsible and beneficial use of powerful generative AI technologies.

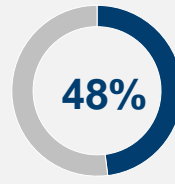
Generative AI Capabilities & Potential Use-Cases

Use-Case	Potential
 <p>Behavior Simulation</p>	<p>In the telecom sector, generative AI has the capability to simulate user behavior.</p> <p>This could allow telecommunications companies to predict potential reactions of consumers to new services, pricing structures, or changes in network configurations.</p>
 <p>Content Personalization</p>	<p>Generative AI in the telecom sector could potentially leverage trend analysis, user preferences, and pertinent data to craft personalized and compelling content.</p> <p>This could help in enhancing customer communication for greater effectiveness and engagement, thereby boosting user satisfaction.</p>
 <p>Natural Voice Generation</p>	<p>Telecom companies are increasingly using lifelike voices for IVR systems and virtual assistants, improving the quality of customer interactions.</p> <p>The use of generative AI in voice generation could ensure that the responses are lifelike and natural, creating a more engaging and interactive experience for customers.</p>
 <p>Predictive Maintenance</p>	<p>The AI can analyze historical tower performance data to create predictive models considering factors, including weather, equipment age, and usage patterns.</p> <p>These models could forecast maintenance needs for tower components, enabling proactive scheduling during off-peak hours to maintain network quality and minimize disruptions.</p>
 <p>Network Optimization</p>	<p>Generative AI may play a crucial role in monitoring network operations in real-time, detecting faults, Service Level Agreement (SLA) breaches, diagnosing root causes, correlating data from various sources, and eliminating false alerts.</p> <p>This could be done by creating models that simulate various scenarios to anticipate and prevent network congestion, improving overall efficiency.</p>

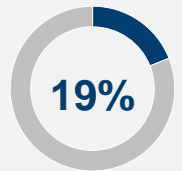
Adoption Levels and Impact of Generative AI



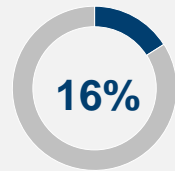
The % of global executives who agree that AI foundation models will play an important role in their organizations' strategies in the next 3 to 5 years.



The adoption growth % of telco use cases (marketing and product, customer service, network, and IT) expected by 2025.



The % adoption in EU telcos remains limited due to surrounding regional data residency restrictions such as the GDPR.



The % of generative AI adoption in the APAC region, which is constrained by localization challenges, including language.

Telco Industry Leaders on Generative AI



Tony Skiadas,
CFO at Verizon,

The company continues to explore the use of generative AI technologies like ChatGPT alongside other AI functions and services. He said the company is looking at AI to both enhance and improve Verizon's business, as well as to cut costs.



Hiroshi "Mickey" Mikitani,
CEO at Rakuten

The company is working on its own large language model (LLM). The company plans to use the AI model internally to improve operational efficiency and marketing by 20%, as informed by Mikitani.

Prominent Early Adopters of Generative AI



Generative AI in Telecom - Promising Proof of Concepts

S.No	Company	Proof of Concept
1		<ul style="list-style-type: none"> ▪ The Product: Fujitsu introduces Virtuora IA, a suite of AI-powered network applications leveraging machine learning models to enhance mobile network operators' performance and simplify operations. ▪ The Technology: Virtuora IA uses real-time inference for precise problem analysis, creating ML models for contextual network insights. It adapts to changing network behavior for proactive actions such as automated notifications and remediation. In a recent trial, a Tier-1 Mobile Network Operator swiftly identified and addressed network anomalies, pinpointing root causes within minutes. ▪ The Impact: The applications, built for LLM technology and generative AI compatibility, enable continuous learning and self-healing multivendor networks. This enhances network automation, reducing resolution times, eliminating tasks, and enabling faster, more accurate decisions.
2		<ul style="list-style-type: none"> ▪ The Product: AT&T's launch of Ask AT&T democratizes AI, enabling widespread accessibility across the organization. The tool, designed as an intuitive conversational platform, allows employees to interact using natural language. ▪ The Technology: Ask AT&T conducts independent data analysis, identifying fields, merging tables, and generating code to extract valuable insights from network data flows. ▪ The Impact: This feature signifies a shift where human language becomes akin to SQL or Python, presenting new avenues for enhancing AT&T's business operations.
3		<ul style="list-style-type: none"> ▪ The Product: Orange utilizes AI and Google Cloud technology to provide personalized recommendations for phones, plans, and services, thereby enhancing customer lifetime value. ▪ The Technology: Orange accelerates AI application deployment for local teams and enhances agility by integrating the cloud into data centers with Google Distributed Cloud (GDC). This collaboration also expands business opportunities, enabling use cases to span across multiple countries where Orange is operating. ▪ The Impact: Google Cloud enables generative AI-based speech recognition in every country Orange operates, extending powerful AI capabilities to regions without a Google Cloud presence.
4		<ul style="list-style-type: none"> ▪ The Product: Amdocs, a major software and services provider, aims to develop custom large language models (LLMs) for the global telecom industry, leveraging the NVIDIA AI foundry service on Microsoft Azure. ▪ The Technology: Efforts include building a generative AI assistant for network planning, providing insights on outages, and optimizing operations through real-time monitoring, prediction, and issue resolution. ▪ The Impact: Amdocs and NVIDIA collaborate to address the challenges of network operations, exploring solutions for configuration, coverage, and performance issues in real-time.

High-Impact Areas for Gen AI Integration & Use-Case Realization

Driving Automation Use Cases

New Business Model Use Cases



Improved Customer Service



Content Generation



User Behavior Modeling



Natural Voice Generation



Enhanced Customer Engagement



Automated Network Monitoring & Predictive Maintenance



Dynamic Resource Allocation

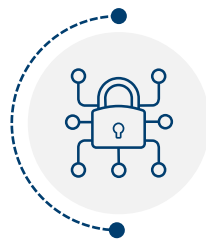


Network Optimization

Generative AI in Telecom

How could Aranca Help? (1/2)

Aranca Helps Enterprises Demystify the Hype & Approach Digital and AI Confidently



Demystify the hype

Should you worry about the hype?

Decoding the ROI

Manage change and make it sustainable

Understanding the Technology

- Understand the technology, its impact, and the potential for change it can provide
- Understand where the organization is, and where it aims to go.
- Map out the of technologies that could get the organization there

Technology Relevance to Industry

- Evaluate the new technologies, understand the value add that they bring in.
- Assess technology maturity and stability
 - Identify technology developers and suppliers

Use-Case and Best-Fit Analysis

- **Identify** use cases and narrow down to the use case of interest based on strategic fit.
- **Define** success criteria for the use case.
- **Benchmark** the new technology against the traditional/incumbent technology or way of doing work
- **Evaluate** ROI

Roadmap for Change Management

- Technical roadmap**
- Analyze build vs. buy vs. partner scenarios.
 - Plan the features for a proof of concept
- Cultural change management**
- Educate and train
 - Make the workforce feel involved

How could Aranca Help? (2/2)

Program Management Aranca helps Enterprises drive and manage Change



Vendor Selection and Onboarding

Contract Negotiation

Performance Monitoring

Risk Management

- We assist with researching and sourcing suitable vendors, seeking quotes, shortlisting and selecting the best fit.
- We also help with the onboarding process, gathering necessary documentation and information to set up vendors efficiently.

- We help in negotiating vendor contracts to ensure terms are beneficial for both parties.
- We define the scope of goods/services, timelines, terms and conditions, and address areas like confidentiality and non-compete clauses.

- We help in monitoring and evaluate vendor performance against KPIs like quality, volume, timelines, etc.
- We also track if vendors are meeting agreed SLAs and expectations.

- We assess and monitor risks that vendors may pose, such as compliance breaches, data security issues, supply chain disruptions, etc.
- We put processes in place to mitigate these risks proactively.

Governance and Alignment

- We establish policies, procedures, accountability and control structure for effective vendor management across the organization.
- We align vendor relationships with strategic priorities to create value.

Continuous Improvement

- We drive continuous improvement of vendor management operations for efficiency, scalability and alignment with changing business needs.
- We identify opportunities to optimize costs, enhance performance and drive innovation through vendor partnerships.

About the Research

Impact Area Definitions:

- **High impact use case:** The use cases that could be realized using generative AI under this category could have a potentially high impact on top line of the organizations and help organizations explore new business models.
- **Low impact use case:** The use cases that could be realized using generative AI under this category have less impact on top line of the organizations and help in automating/streamlining existing processes. These use cases have potential to help organizations grow at faster pace and increase operational efficiency.

Use Case Definitions:

- **Enhanced Customer Engagement:** Generative AI that can create personalized replies, such as chatbots and virtual assistants, to engage with customers in a more human-like manner. Using this AI could improve customer satisfaction, reduce churn rates, and lead to increased revenue.
- **User Behavior Modeling:** Generative AI can model user behavior to better understand customer needs and preferences, enabling telecom companies to tailor their services and offerings accordingly.
- **Improved Customer Service:** Generative AI can assist customer support agents by generating relevant information in a summarized form, boosting productivity and improving communication efficiency.
- **Network Monitoring & Predictive Maintenance:** Generative AI can be used to monitor network performance and predict maintenance needs, enabling telecom companies to proactively address potential issues before they become critical. This could lead to cost savings, improved employee productivity, and enhanced customer satisfaction.
- **Content Generation:** Telecom companies could leverage generative AI to personalize content creation, offering tailored recommendations based on customer interactions across platforms and support services. This personalization enhances user experience, engagement, and satisfaction, contributing to increased revenue and customer retention.
- **Network Optimization:** Generative AI can assist in optimizing network functions, software design, and configuration, leading to a more efficient and scalable network infrastructure. It streamlines the deployment of network resources and services, expedites the identification and resolution of network failures, and enhances network reliability, ultimately improving customer satisfaction.



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