



## HOW AI IS TRANSFORMING THE TELECOM SECTOR – 2024 AND BEYOND

## ABSTRACT

The telecommunications industry has traditionally been complex. Its success has been contingent upon the delicate balance between efficient networking systems, robust infrastructure, seamless bandwidth access, and effective customer support. In today's wireless world, telcos that can simultaneously coordinate and manage these business and technology demands are poised for success. In such a scenario, artificial intelligence (AI) holds great promise, ringing in an era of cloud-based, technology-defined platforms and networks. This paper explores the challenges and changes in the telecom sector while highlighting the key technology-powered trends to dial into in 2024.



## Introduction

Telecommunications service providers (telcos) have seen a phenomenal evolution. From being network providers for communications to advanced technology enablers, they offer essential services to billions of consumers across the world. As a mature industry, and a prime utilities supplier, it is now being put to the test. Networks are growing denser and exponentially complex, calling for intelligent distributed network capabilities, engineering competence, technical efficiency, and speed. This need for low latency and zero disruptions makes artificial intelligence (AI) integration an imperative.

Telcos accumulate massive volumes of service, telemetry, and usage data in real time. AI can help tap into this large, underused data pool to unlock insights for and value from better infrastructure management, operational efficiency, and enhanced customer experience. Despite rising inflation and shrinking revenues currently straining telco budgets, investing in AI can augment network capabilities, fortify customer relations, streamline business operations, and boost profits. Recent research shows that AI in the telecommunications industry is expected to generate an impressive US \$11 billion in annual revenue by 2025<sup>1</sup>. To get there, business and technology challenges must be strategically addressed.

## Key Business and Technology Challenges

The telecom sector operates under relentless pressure from evolving technologies – from 2G to 5G and beyond. As the need for uninterrupted communication and bandwidth spikes, meeting customers' expectations has become more challenging. Driven by the latest in AI and robotics as well as gaming and streaming, consumers are clamoring for seamless connectivity and speed.

While modern consumers demand personalized experiences and innovative services, customer churn remains a concern. According to a recent report, customer loyalty to telcos is down 22%<sup>2</sup> over the last couple of years, owing to subpar customer experiences. And yet, consumer density is up, with global data consumption over telecommunication networks, projected to skyrocket to



US \$ 9.7 million petabytes by 2027<sup>3</sup>. This surge in customer base and data consumption has added to the challenge of evolving cyberattacks and newer fraud patterns. A global telecom industry survey reports a 12% increase in fraud since 2021, estimating US \$ 38.95 billion in losses during the past years<sup>4</sup>. Tighter data and network security calls for multi-layered, reliable authentication measures as well as technical and operational upgrades, putting existing systems and networks under further duress.

Telcos are on the line as they navigate these challenges, adapting to the evolving landscape while trying to maintain profitability and customer satisfaction. Traditional approaches to data engineering and predictive analysis have proved to be inadequate in the existing scenario, leading to increased operational costs and reduced return on investment (ROI). With troves of fragmented data on disparate systems accumulated over time from extensive networks and customer bases, many telcos are in disarray. Manual intervention and reactive processes lead to delays in issue detection and resolution. These operational stressors result in suboptimal network performance, increased downtime, and ineffective decision-making.

## Technology in Telcos Today

The telecom sector thrives on fast and seamless services. Several industry players are finding a solution to their operational and business concerns in AI and allied technologies. Along with data analytics and advanced computational techniques, AI is helping telcos with enhanced predictive capabilities that offer precision and efficiency. Across their business, telcos that leverage AI and new technologies are reaping the benefits of smart scheduling and forecasting as well as operational efficiencies and streamlined workflows. These benefits include the ability to predict customer needs, preemptive network optimization, and dynamic resource allocation during peak/non-peak usage periods. Telcos also gain an edge with AI-powered network slicing for customized networks, pattern recognition, and anomaly detection to prevent fraud, and edge computing for reduced latency and enhanced network efficiency.

With field and service operations accounting for up to 70% of their budgets<sup>5</sup>, AI is also helping address cost pressures. Taking a data-driven approach, telcos that are using AI and ML can better manage the constantly crowded customer market and its intricate service combination demands with ease. They are improving performance, engaging customers, cutting costs, and laying the groundwork to automate the industry.

## Emerging Technologies and Implementation

The telecom sector has long been accustomed to intricate operational models and complex workflows. Its experience in working with and building on such models makes it well-suited to adopt AI as the fundamental technology to drive services. With the proliferation of newer AI and ML models as well as generative AI (GenAI) as a force multiplier, here are some of the key trends that telcos can look forward to:

### 1 Network optimization through smart planning and smart field operations

Telcos can look to automate network planning using the concept of a digital network twin for faster, accurate, and more efficient services. AI/ML algorithms trained on large, historical datasets will be harnessed to predict and propose enhanced network performance for customers, making their efforts time as well as cost-effective. GenAI will help with low-cost remote diagnosis and resolution of network snags, with 24/7 AI-powered virtual assistants or chatbots for quicker troubleshooting and improved service quality.

### 2 Customer engagement round the clock through cognitive intelligence and real-time insights

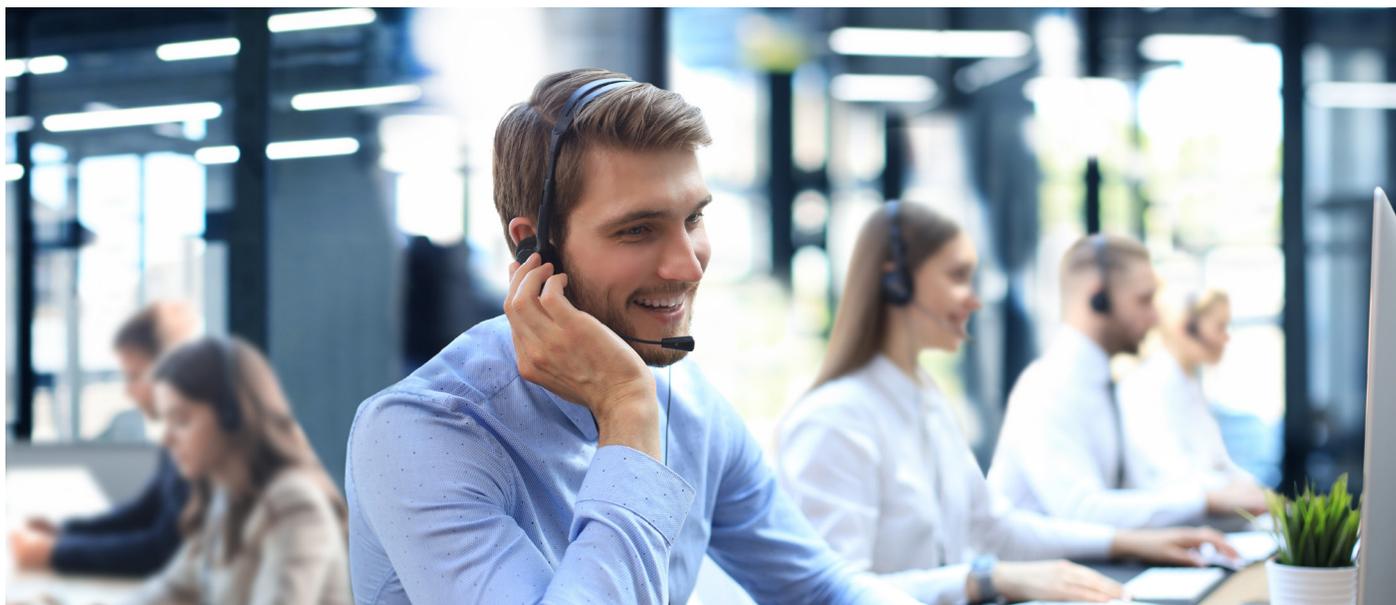
While traditional AI/ML will help with intelligent chat routing, GenAI is here to revolutionize call recording summarization, issue resolution, and sentiment analysis, by understanding customer context across channels, delivering personalized assistance, and ensuring seamless interactions. Semantic search, voice-enabled digital assistants as well as cognitive and intelligent nudges will offer real-time insights and guided workflows. As a result, improved customer services, personalized assistance, and seamless interactions will lead to greater customer engagement and higher first-call resolution rates.

### 3 Fraud detection and response through adaptive security measures and proactive prevention

The effectiveness and accuracy of AI/ML models is largely driven by the data they use. GenAI will help telcos leverage the massive volumes of data gathered over time to proactively predict and prevent security risks through early detection of fraudulent patterns. Using network-wide adaptive security measures, GenAI will dynamically adapt to evolving hacker tricks and trends, ensuring data and network integrity.

### 4 Better products, services, and pricing strategies, driven by AI and data insights

2024 could see a boost in customer satisfaction and revenues alike with telcos implementing AI solutions to analyze customer data, design tailored plans, and craft individual pricing models. Further, AI is expected to reduce churn rates with an expected 10% increase in customer retention<sup>6</sup>.



## Solution Approach

Telcos can transition into “tech-cos,” adapting their product and operational strategies to get the best out of AI. Here is what they need:



### The “right” data

The success of AI models hinges on the availability of the right data – with the quality, quantity, and variety being key. GenAI can assist in training large language models (LLMs) using enterprise data, including user-generated content, emails, meeting notes, chat records, audios, and videos, among others.



### Responsible design

Appropriate governance can ensure GenAI works responsibly and as intended, with adequate safeguards from inception to implementation. Such an approach guarantees ethical, secure, and lawful products that are responsible by design. Thus mitigating risks and building trust, telcos can sustainably scale intelligent customer segmentation and network optimization.



### A human-centric focus

Harnessing intelligence from enterprise assets, AI can complement human expertise. Fostering an AI-first vision in a telco would mean building a culture of human-machine collaboration and a long-term relationship with customers.

## Benefits

With the right solution approach, AI can enable a huge leap in the telecom revolution. The power of data and AI/ML, along with GenAI capabilities, can enable advanced automation services, bringing about several benefits, such as:



### Boost in performance

By managing increasingly complex and frazzled networks, analyzing service demand, optimizing resource allocation, and data routing to prevent overload.



### Customer retention

By proactively meeting requirements and demands with personalized services, and greater engagement.



### Balancing budgets

By saving costs from automation, virtual assistance, streamlined operations, and targeted services.



### Mitigating risk

By protecting networks from threats, detecting malicious activities, and calling out potential fraud.



## Conclusion

The telecom sector in 2024 will be characterized by transformative technologies trying to meet evolving consumer demands. AI will offer innovative solutions to resolve long-standing challenges plaguing telcos, with a spotlight on data integrity. Amidst the web of complex networks, large amounts of data, and rising costs, AI is emerging as a powerful partner for the telecom industry. Focusing on emerging trends and creating value-added services in a hyper-connected digital world will be the key to success with AI.

## Key telco challenges

Supply-demand challenges emerging from the need for uninterrupted communication and bandwidth



Consumer demands for personalized experiences and innovative services



Rise in fraud and network security threats



Operational pressure from network performance, downtime, and fragmented data



Maintaining a balance between profitability and customer satisfaction



## 2024 telco trends

Network optimization with intelligent planning and smart field operations



Enhanced customer support and engagement through cognitive intelligence



Fraud mitigation and adaptive security



Dynamic services and pricing strategies, along with a wider range of products



## References

<sup>1</sup> Artificial Intelligence for Telecommunications Applications | OMDIA

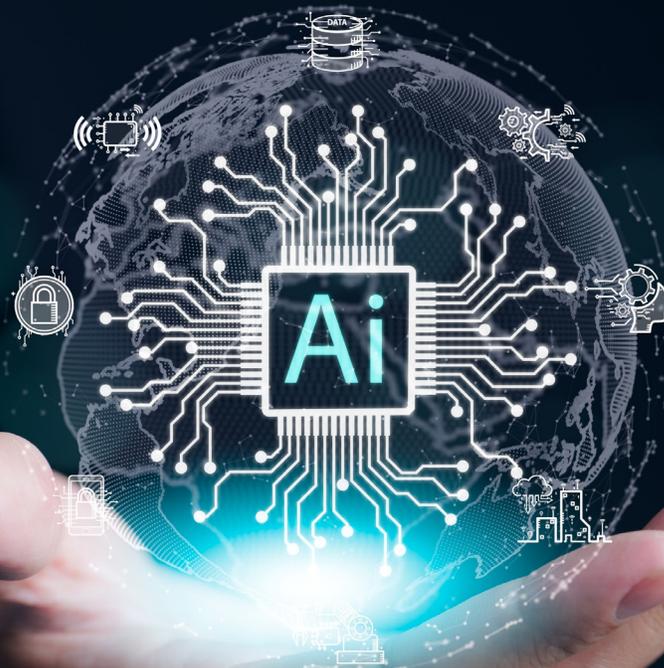
<sup>2</sup> 2022 State Of Customer Churn In Telecom (Survey Report): The Impact Of The Pandemic On Churn Trends | TechSee

<sup>3</sup> The future on the line - Perspectives from the Global Telecom Outlook 2023–2027 | PwC

<sup>4</sup> Telecommunications fraud increased 12% in 2023 equating to an estimated \$38.95 billion lost to fraud | CFCA

<sup>5</sup> How AI is helping revolutionize telco service operations | McKinsey & Company

<sup>6</sup> The AI Takeover: 5 Key Trends Shaping Telecom Industry in 2024 | The Fast Mode



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