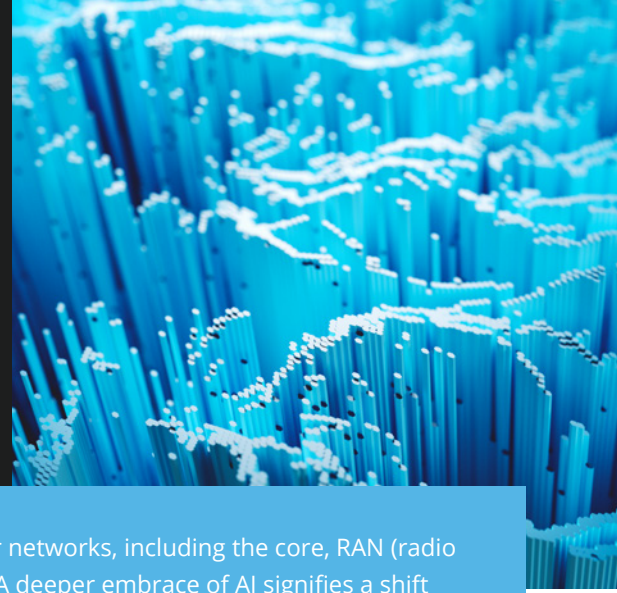# infopulse

Actionable AI Use Cases for Telecom Today_

Tier 1 operators are in the process of integrating AI into all areas of their networks, including the core, RAN (radio access network), predictive maintenance, security, and fraud detection. A deeper embrace of AI signifies a shift towards intelligent and self-evolving networks that can adapt to changing demands and user needs in real-time.

50%
of telco executives are investing to scale AI from pilot to implementation*

AI
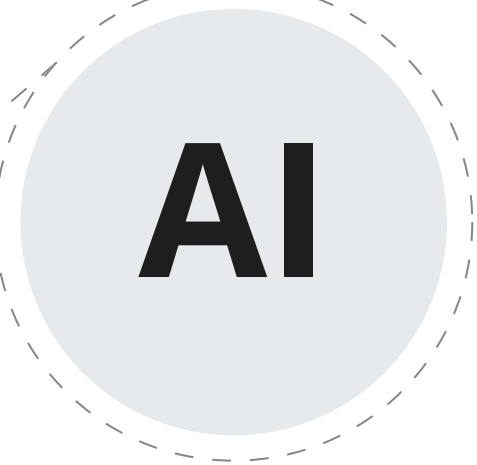
01

Network Optimization: AI excels in predicting network congestion and optimizing routes, leading to smoother data flow and improved network performance, encompassing tasks such as:

- Customer incident management
- Network planning
- Deployment and configuration
- Network operations support
- Fault diagnosis
- Resource utilization and allocation
- Network security

02

Predictive Maintenance: By analyzing sensor data from equipment, AI can predict potential failures and prevent costly downtime, ensuring network continuity and improved efficiency for various communication hardware, including cell towers, power lines, and data center servers.

03

Demand Forecasting: AI can predict the demand for various services and optimize resource allocation accordingly, to ensure network reliability and performance.

04

Network Function Adjustment: AI can automatically adjust network functions (like route optimization or power control) based on real-time network conditions.

* Source

05

Fraud Detection: AI leverages advanced analytical and machine learning techniques to identify, prevent, and mitigate fraudulent activities in real-time.

06

Optimization of Revenue Management:
AI streamlines complex telecom billing processes by identifying inconsistencies, fraud, and revenue leaks. Its real-time analysis catches errors (like discrepancies between charged amounts and actual data usage) before bills go out, minimizing customer issues.

07

24/7 AI-powered Virtual Assistants are transforming customer service for telecom operators. These assistants personalize omnichannel communication, provide self-service options, and gather valuable customer insights.

08

Personalized marketing:
AI personalizes telecom marketing by analyzing customer data to deliver targeted offers, predict churn, and improve customer satisfaction.

09

AI Customer Churn Prediction arms businesses with the power to foresee customer departures. By analyzing historical data, AI identifies at-risk customers, triggering targeted retention efforts – discounts, plan upgrades, or loyalty rewards – to minimize churn.

10

Telco Security is getting a major boost from AI: By analyzing massive amounts of network data in real-time, AI can identify suspicious activity like unusual traffic spikes or phishing attempts, keeping your network safe.

Cloud hosting is gaining traction for running AI workloads. 31% prefer cloud-based AI workloads (up from 21% in 2022)
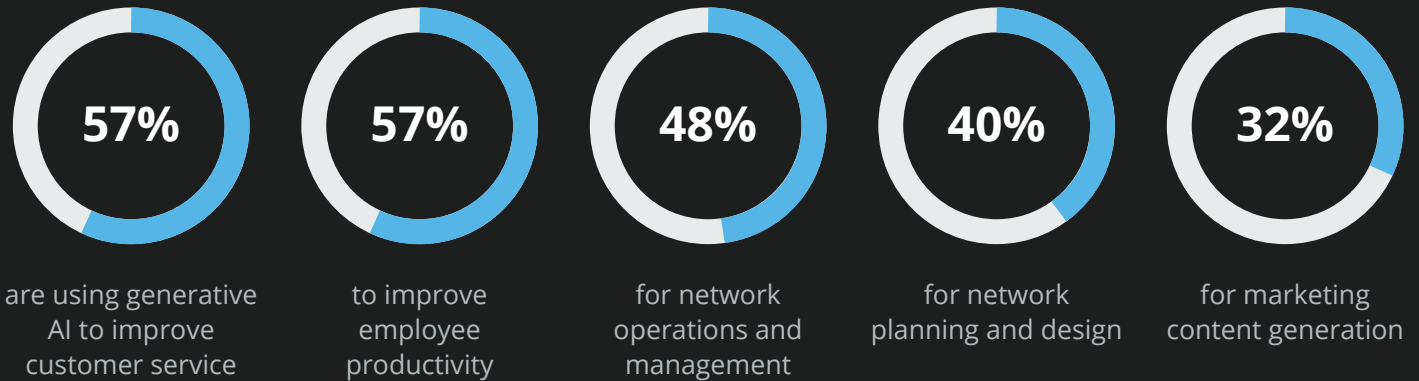
31%

21%

■ 2022
■ 2023
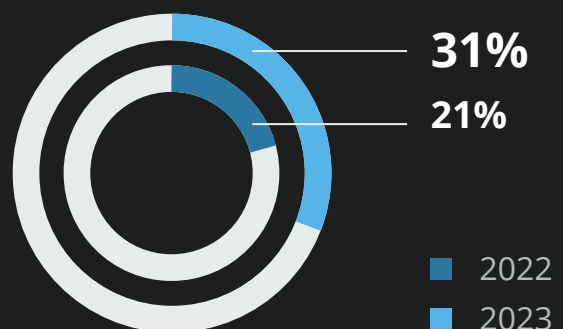
Generative AI for Network Optimization

Generative AI is making waves in telecom, particularly for network optimization. While its potential extends beyond this area, for now, its ability to create realistic network simulations is proving invaluable for testing and validating new solutions.

Generative AI is a new and promising technology in the telecom industry.

43% of respondents reported they were investing in Gen* AI in 2023

Among respondents who are investing in AI:

57%
are using generative AI to improve customer service

57%
to improve employee productivity

48%
for network operations and management

40%
for network planning and design

32%
for marketing content generation

Generative AI creates synthetic channel data used for testing and validating RAN algorithms and systems.

- **Traditional methods:** Previously, network engineers relied on collecting real-world channel data, which can be time-consuming, expensive, and limited in scope (e.g., only specific locations, with specific weather and radio propagation conditions).

- **Generative AI advantage:** Generative AI analyzes existing data to create synthetic channel data, simulating diverse conditions (e.g., urban areas, different weather) that are difficult or impractical to capture in reality.

Leveraging Radio Access Network (RAN) simulations through synthetic data generation can:

- **Test and validate RAN algorithms and systems** in diverse conditions, aiding in their development and deployment.
- **Train and evaluate algorithms** for real-time channel condition estimation, improving network performance and efficiency.

- **Generate synthetic network traffic** that mimics real-world patterns, enabling:
  - **Performance testing** to identify network bottlenecks and assess its ability to handle traffic loads.
  - **Capacity planning** for future network upgrades and resource allocation.
  - **Evaluation of network management strategies** to optimize network operations and service delivery.

Trained in-house AI with their data

Built/customized with partners

40%

29%
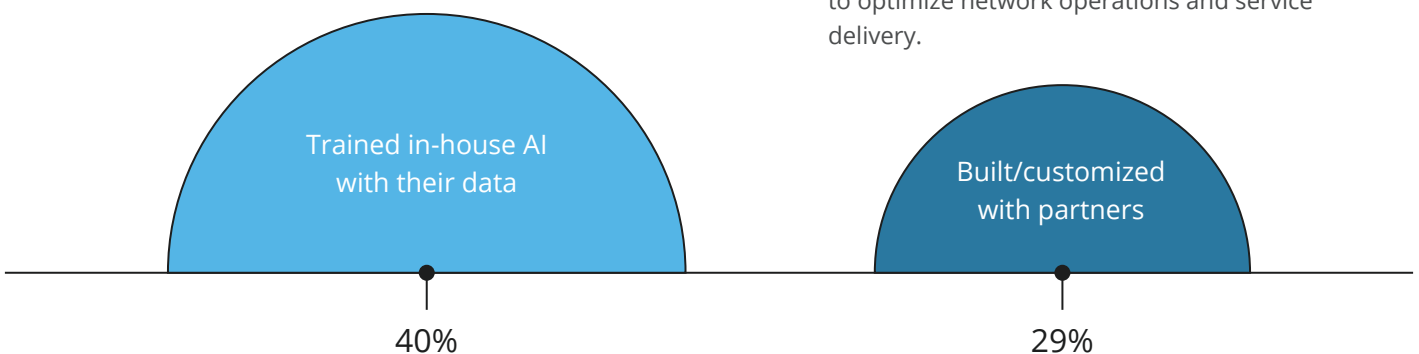
* [Source](#)

Conclusion

AI is rapidly transforming telecom networks. From predicting outages to personalizing customer service, AI is delivering real-world benefits. This translates to better network performance, fewer headaches for customers, and a stronger bottom line for operators.

44%
of telco leaders prefer co-development for AI projects

By partnering with the right IT provider, telcos can bridge the gap between cutting-edge AI solutions and real-world implementation.

Case in point:

Swisscom operator leveraged a type of artificial intelligence called reinforcement learning (RL), where a system learns through trial and error, to optimize their cell tower network. This resulted in a significant decrease of 20% in the power required to transmit signals without any negative impact on performance. This achievement translates to a double benefit: cost savings for Swisscom and positive environmental effects due to reduced energy consumption.

Learn more ↗

We are ready to become your reliable and knowledgeable partner on your digital venture into AI. Contact us anywhere, we are flexible

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