MANTRA LABS

FORECASTING THE FUTURE

Transforming Telecom Network

OPERATIONS THROUGH PREDICTIVE ANALYTICS

PROJECT OVERVIEW

Telecom operators are under immense pressure to deliver seamless network performance and customer experience. Traditional network planning and optimization methods are proving inadequate to keep pace with the exponential growth in data traffic.

By leveraging the power of data science and engineering, we transformed our client's operations, leading to significant improvements in network performance, cost savings, and customer satisfaction.

THE CHALLENGE

Our client, a leading global telecommunications OEM (Original Equipment Manufacturer), faced significant challenges in optimizing network performance and resource allocation resulting in:

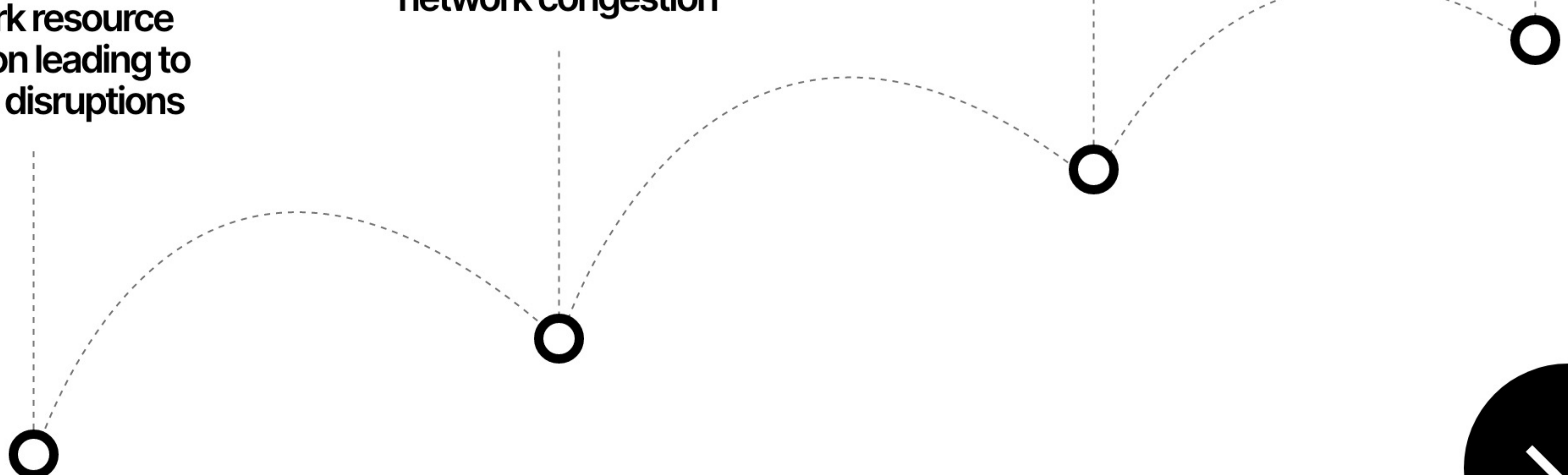**Inconsistent network resource allocation leading to service disruptions**

Unpredictable traffic patterns causing network congestion

Limited real-time visibility into performance metrics

Escalating operational expenses

STRATEGIC
OBJECTIVES

The product management team at this telecom OEM had 2 key objectives:

To classify radio sites based on load and traffic conditions, predicting future traffic growth and resource needs.

To develop algorithms to analyze System Engineering's Performance and Utilization reports to forecast site growth.

MANTRA'S DATA—DRIVEN NETWORK OPTIMIZATION

Our comprehensive network performance analysis transformed raw data into strategic insights for **telecom infrastructure planning**. By conducting a detailed traffic pattern analysis across targeted geographic regions, our data scientists discovered significant traffic variations during specific time intervals.

For instance, we identified a particular area with peak morning traffic and demonstrated substantially higher network utilization compared to other periods indicating a non-linear growth trend. By leveraging **advanced data science techniques**, our team

Pinpointed exact locations experiencing network stress

Predicted potential infrastructure requirements

Provided actionable recommendations for network capacity enhancement

THE PROCESS

To enhance customer satisfaction and optimize network performance, we analyzed network performance metrics, particularly call drops and resource utilization.

Data Data Analysis	Data Preparation	Predictive Modeling	Data Mining Insights	Data Visualization
Our data scientists meticulously analyzed anonymized network logs, focusing on specific geographic regions.	The data was structured and prepared for analysis, enabling seamless integration into relational databases.	Our analysts employed advanced regression techniques to forecast system utilization and traffic patterns for individual sites.	By leveraging data mining, we classified sites into categories (rural, semi-urban, highway, and urban) to identify growth trends and potential bottlenecks.	Derived insights to highlight growth rates, pinpoint sites requiring upgrades, and uncovered hidden relationships between neighboring cells.

THE IMPACT

Enhanced Network Performance

65% improvement in System Engineering Performance and Utilization reports.

28% reduction in call drops, improving customer satisfaction.

Precise predictions of infrastructure requirements.

Cost Savings

25% cost savings through optimized resource allocation.

Streamlined network expansion **plans**.

Data-driven infrastructure investment **strategy**.

Strategic Decision Making

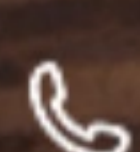Data-driven **insights** to **optimize** tower capacity expansion and infrastructure investments.

Proactive issue identification and risk management.

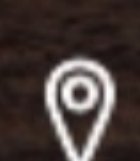Intelligent resource **deployment**.

ACHIEVE OUTCOMES

THAT MATTER
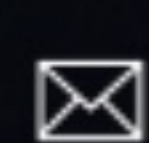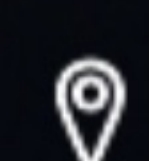
📞 +91 987- 033- 3426

✉ hello@mantralabsglobal.com

📍 India | Bengaluru, Kolkata

📞 +1- 872- 362- 0414

✉ parag@mantralabsglobal.com

📍 USA | North Carolina