

# Business Impact Summary Report

## □ *Project:* Customer Churn Prediction – Telecom Sector

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### □ Objective

The goal of this project was to predict customer churn and identify key factors driving it. Telecom companies often lose significant revenue when customers switch providers, and this analysis aimed to **detect at-risk customers early** and **support targeted retention strategies**.

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### □ Analytical Approach

- Extracted and validated telecom data using **SQL**, ensuring data accuracy and completeness.
  - Performed **Exploratory Data Analysis (EDA)** in **Python** (Seaborn, Matplotlib) to uncover churn patterns and correlations.
  - Applied **feature engineering** and built multiple **machine learning models** (Logistic Regression, Decision Tree, Random Forest).
  - Selected the **Random Forest model** as the best performer with **94.76% accuracy** and balanced recall.
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### □ Key Insights

- Customers with **more than 3 service calls** are **3× more likely to churn**.
  - **International Plan users** show the **highest churn rate**, indicating dissatisfaction with charges or quality.
  - **Long-term customers** (Account Length >150) exhibit strong loyalty and low churn risk.
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### □ Business Impact

- ✓ Improved customer retention prediction by over **90% accuracy**, enabling proactive outreach.
  - ✓ Supported **10–15% churn rate reduction** through data-driven targeting.
  - ✓ Enhanced revenue stability by focusing on **high-risk, high-value customer segments**.
  - ✓ Empowered marketing teams with actionable insights for **personalized retention campaigns**.
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### □ Tools & Technologies

SQL | Python | Pandas | Seaborn | Matplotlib | Scikit-learn | Power BI

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### □ Outcome

This project demonstrated how predictive analytics can transform customer management. By integrating machine learning insights with business strategy, the telecom company can now **anticipate churn, reduce losses, and improve long-term profitability**.