

# Telecommunication Data Analysis Report

An analytical overview of user behavior and engagement for TellCo to inform potential investors.



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Presenter

# Agenda

Outline of Key Topics for the Telecommunication Data Analysis Report

01

## Situational Overview

An introduction to the current state of the telecommunication industry, highlighting key trends and challenges.

02

## Data Analysis Objectives

Defining the goals and objectives of the data analysis to ensure clarity and focus in our approach.

03

## User Overview Analysis

An in-depth analysis of user demographics and behaviors to understand our audience better.

04

## User Engagement Analysis

Examining user interactions and engagement levels with our services to identify areas for improvement.

05

## User Experience Analysis

Assessing the overall user experience to pinpoint strengths and weaknesses in our service delivery.

06

## User Satisfaction Analysis

Gathering feedback and satisfaction metrics to evaluate user contentment with our offerings.

07

## Recommendations

Providing actionable recommendations based on the analysis to enhance service quality and user satisfaction.

08

## Conclusion

Summarizing key findings and outlining next steps to ensure continued progress and improvement.

ANALYTICAL OBJECTIVES

# Data Analysis Objectives

Key Goals for Analyzing TellCo's Telecommunication Dataset

01

## Understand Customer Behavior

Identify patterns and preferences within user interactions to tailor services effectively.

02

## Evaluate Engagement Levels

Measure how frequently and meaningfully customers interact with services to enhance retention strategies.

03

## Assess User Experience

Analyze customer feedback and usage data to streamline and improve service offerings.

04

## Measure Satisfaction

Utilize surveys and performance metrics to gauge customer satisfaction and identify improvement areas.

05

## Provide Actionable Insights

Translate analysis findings into strategic recommendations for TellCo's acquisition and growth.



DATA ANALYSIS INS...

# User Overview Analysis

Insights from Exploratory Data  
Analysis on User Behavior

01

## Top Handsets Identified

Analyzed user data to pinpoint the top 10 handsets in use, crucial for market trends.

02

## Leading Manufacturers

Identified the top 3 manufacturers driving user preferences and market share.

03

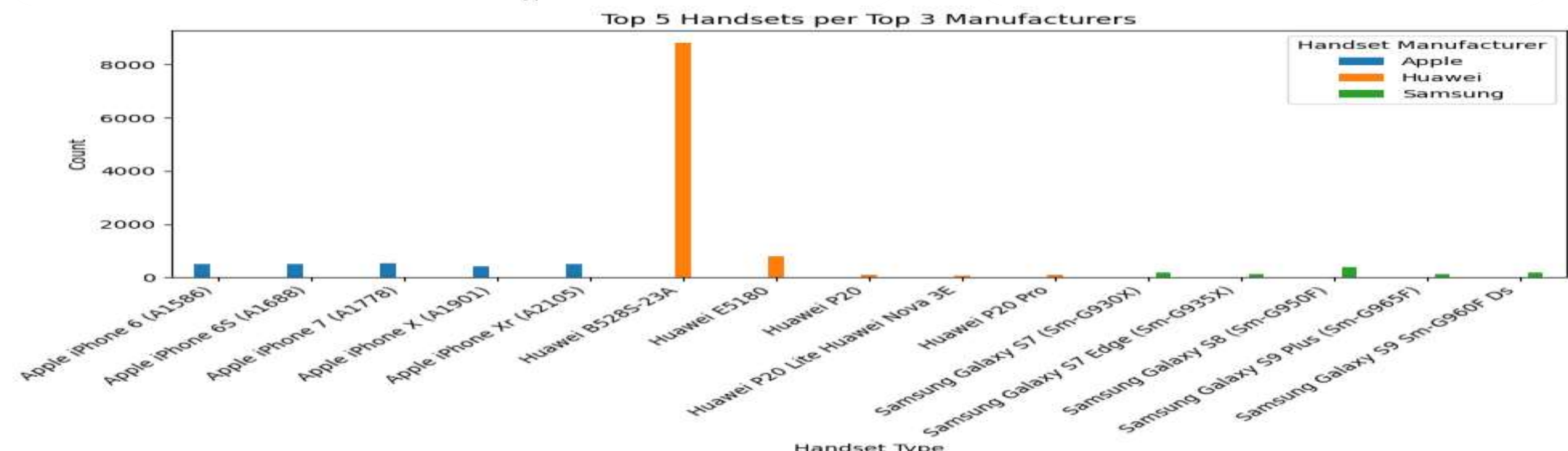
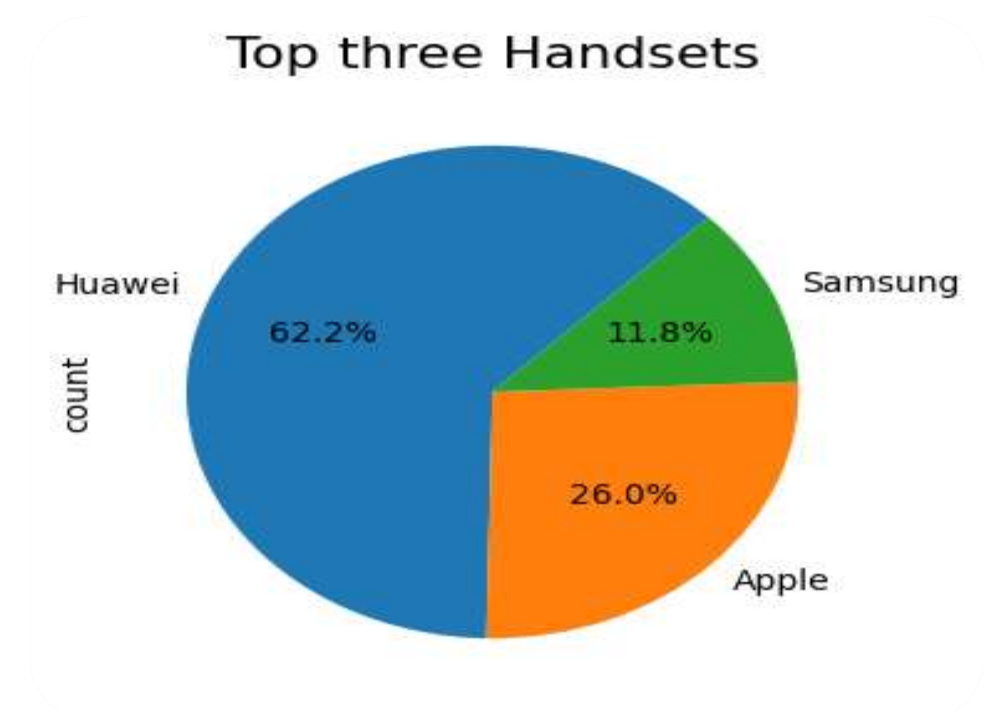
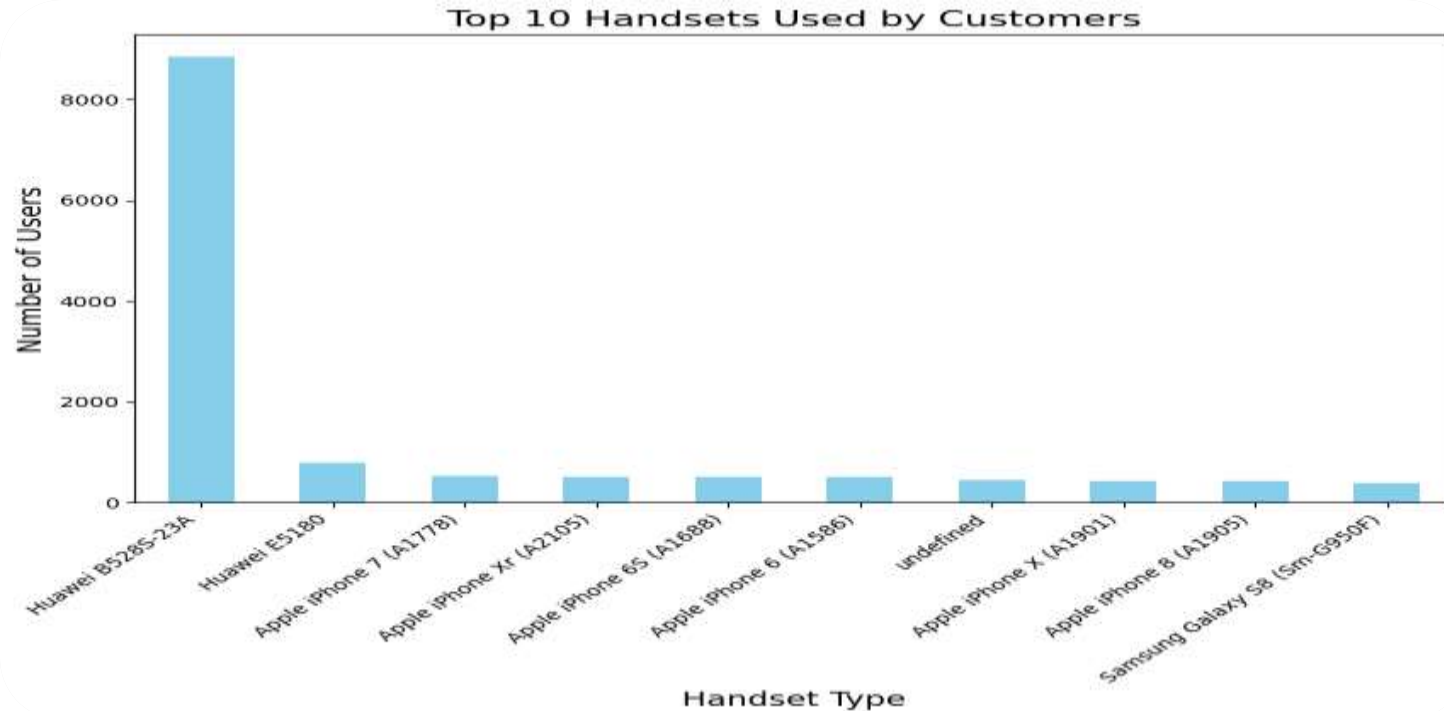
## User Data Aggregation

Aggregated data from multiple applications like Social Media, Google, and Email for a comprehensive overview.

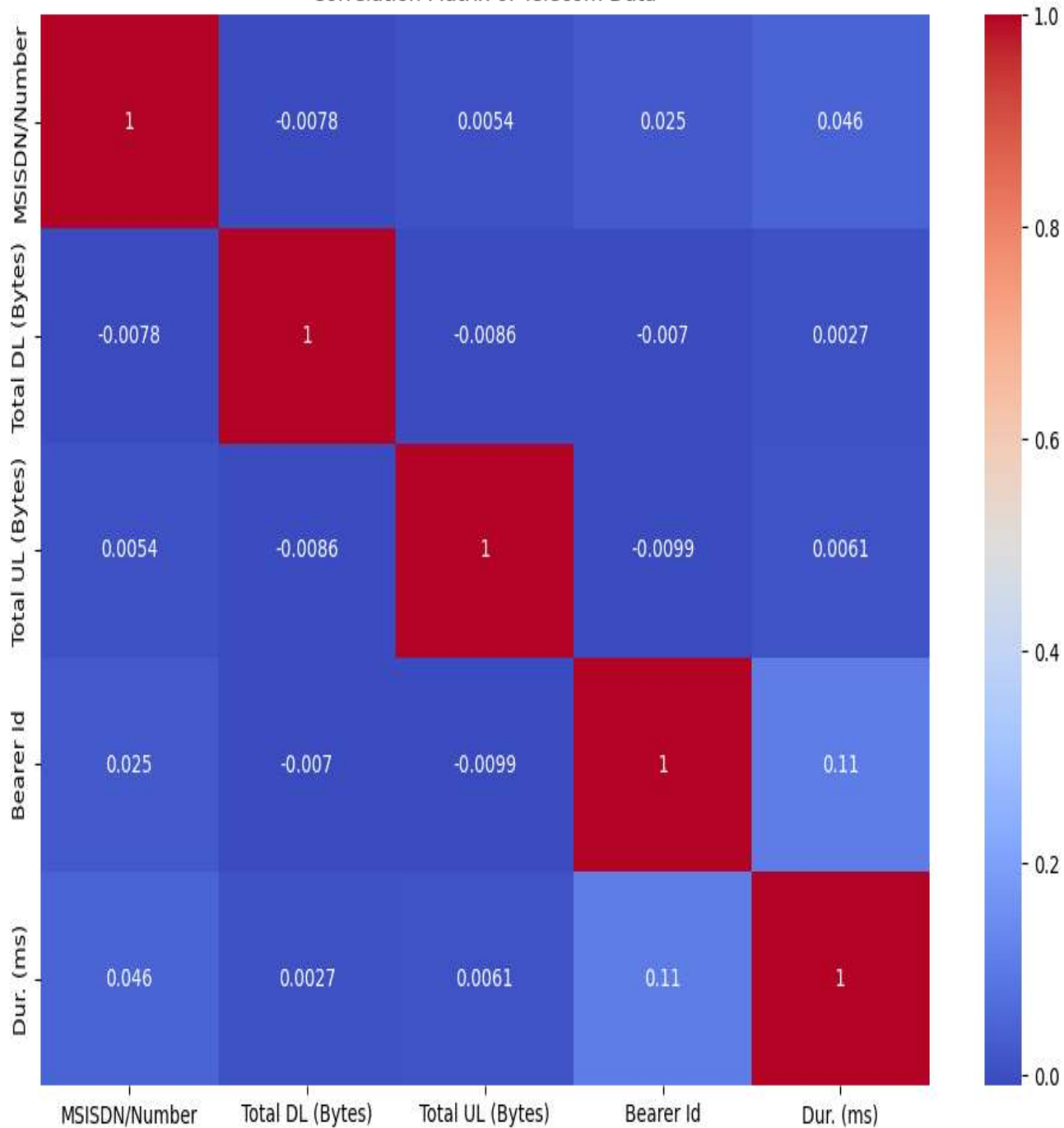
04

## Data Integrity Checks

Reported on missing values and outliers to maintain data integrity, enhancing analysis reliability.



Correlation Matrix of Telecom Data



**Minimal Correlations:** There is also a correlation matrix that shows there are no strong correlations between the variables in this dataset.

**Weakly Positive Correlation:** There is a weak positively correlation between Bearer Id and Dur (ms). This means simply, sessions in which Bearer Id values are high have higher durations.

**No Correlations:** All other variables have no correlation to each potential with each other so they are basically independent.



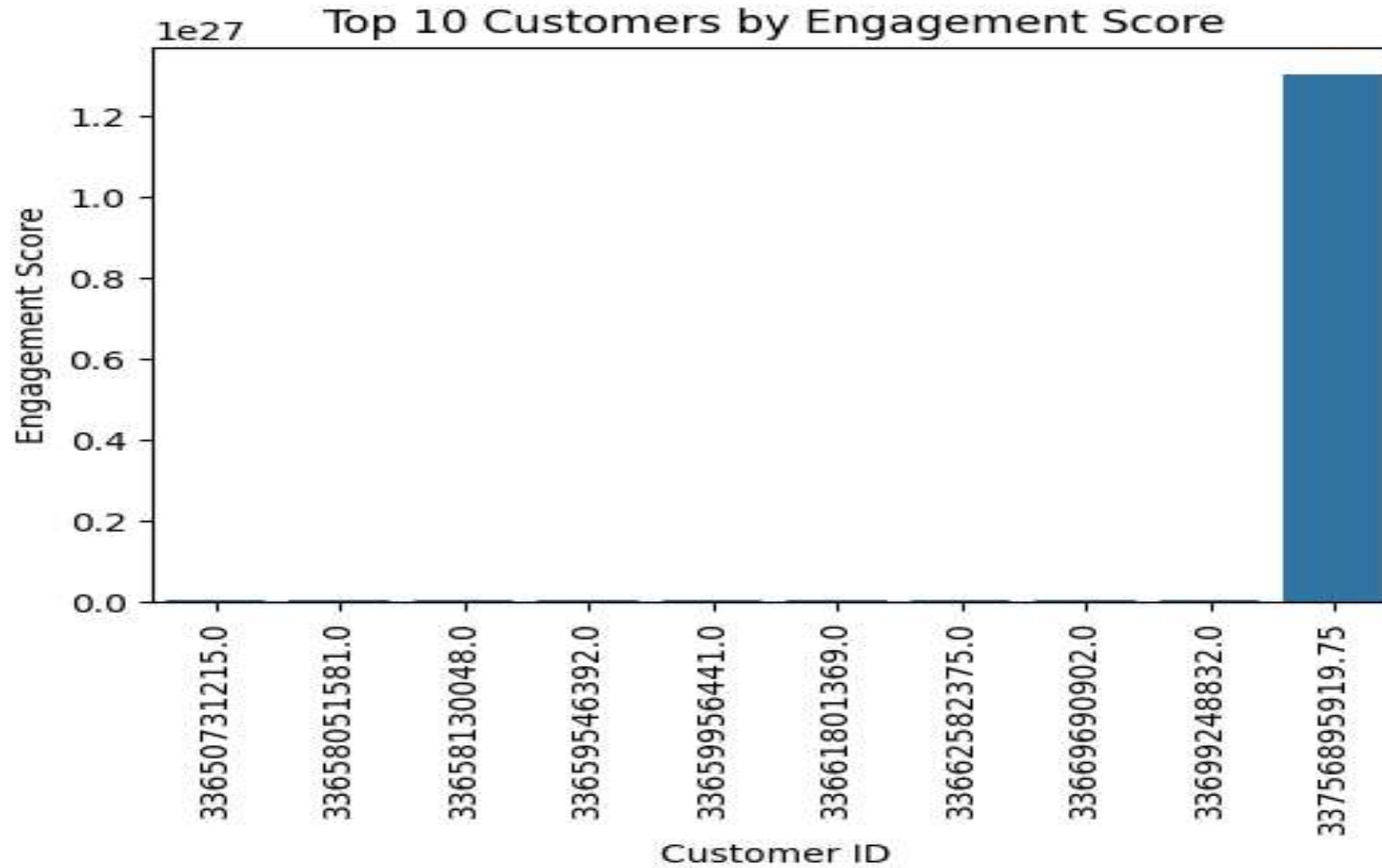
ENGAGEMENT METRICS

# User Engagement Analysis

Evaluating Key Metrics to Enhance User Understanding in Telecom

01	Sessions Frequency	Analyzing how often users engage with the platform can reveal patterns. For example, a higher frequency indicates better user retention.
02	Session Duration	Longer session durations often correlate with higher user satisfaction and content relevance, suggesting effective engagement strategies.
03	Total Traffic Analysis	Evaluating both download and upload traffic provides insights into user behavior and content consumption preferences.
04	Normalization Process	Applying normalization techniques ensures data consistency across varying user engagement metrics, facilitating accurate comparisons.
05	K-Means Clustering	Utilizing k-means clustering ( $k=3$ ) helps categorize users into distinct engagement clusters, allowing for targeted marketing strategies.

# Top 10 customers per engagement metric





## NETWORK PERFORMANCE FACTORS

# Experience Analysis Overview

Evaluating Network Parameters and Device Characteristics Impact



### TCP Retransmission Insights

High TCP retransmissions indicate packet loss, affecting user experience. Understanding the causes can help mitigate delays.

### Round-Trip Time (RTT) Significance

RTT measures the time for a signal to travel to its destination and back. Lower RTT values are crucial for a smoother user experience.

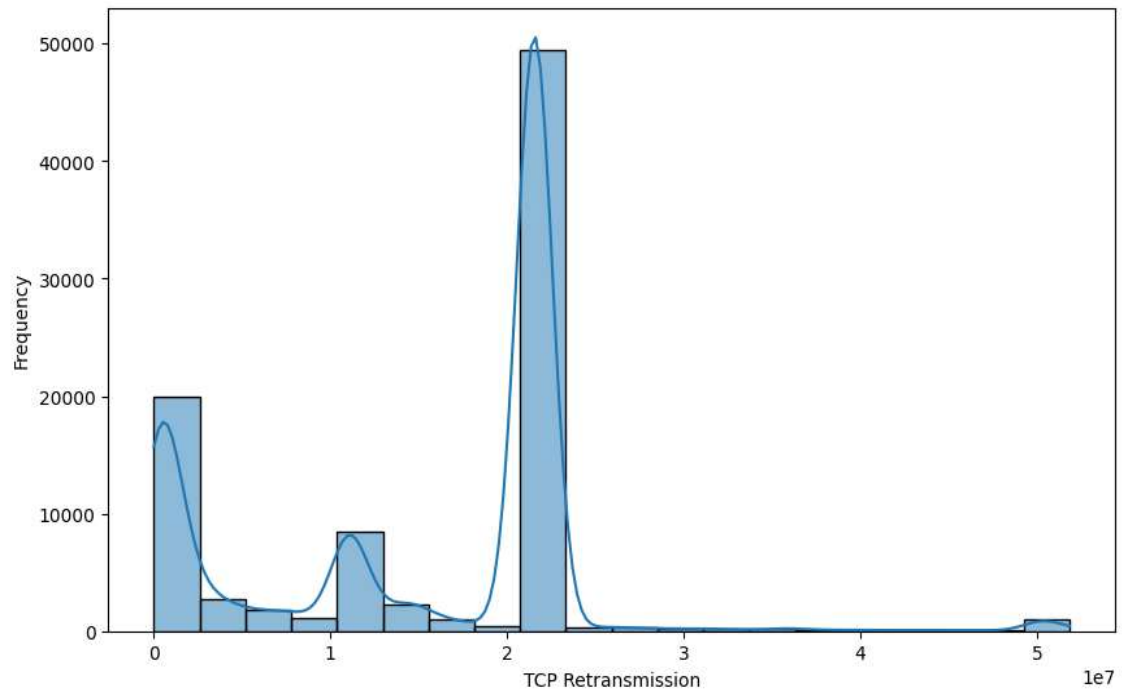
### Throughput Evaluation

Throughput determines how much data is successfully transferred over a network in a given time. Higher throughput correlates with better user satisfaction.

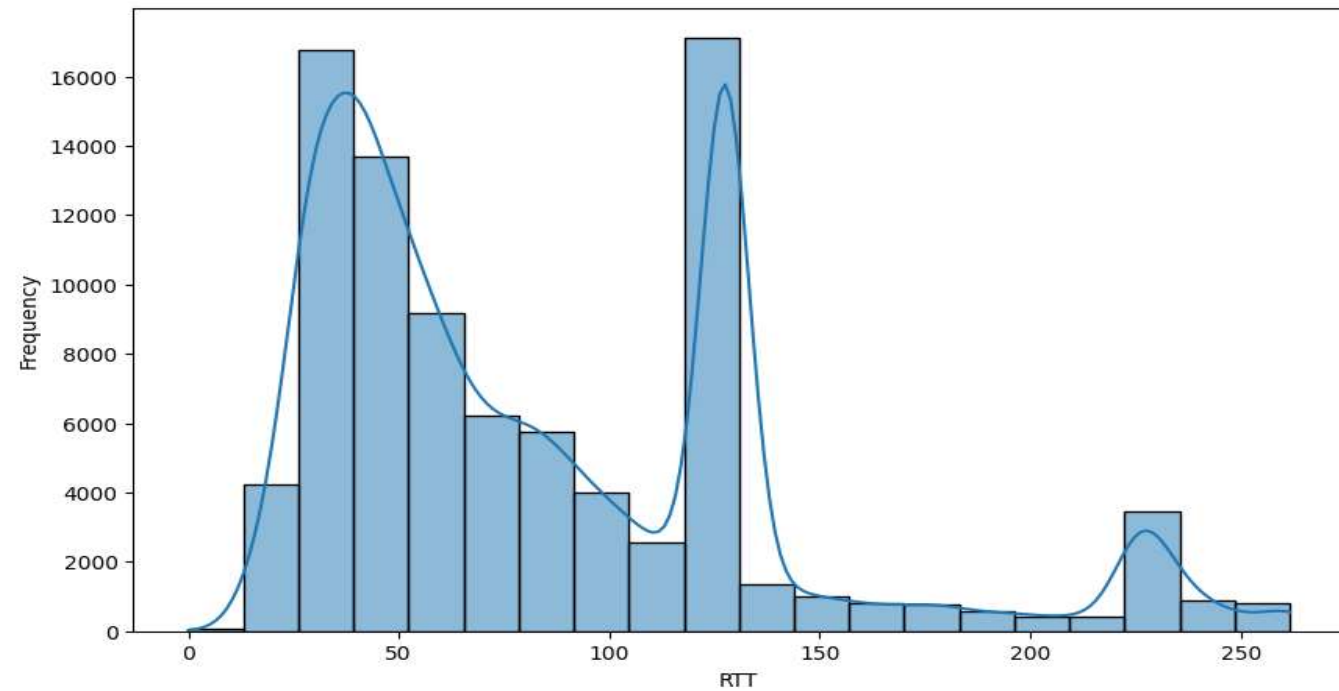
### Customer Device Characteristics

Device capabilities such as processing power and memory impact how users experience network performance, highlighting the need for tailored solutions.

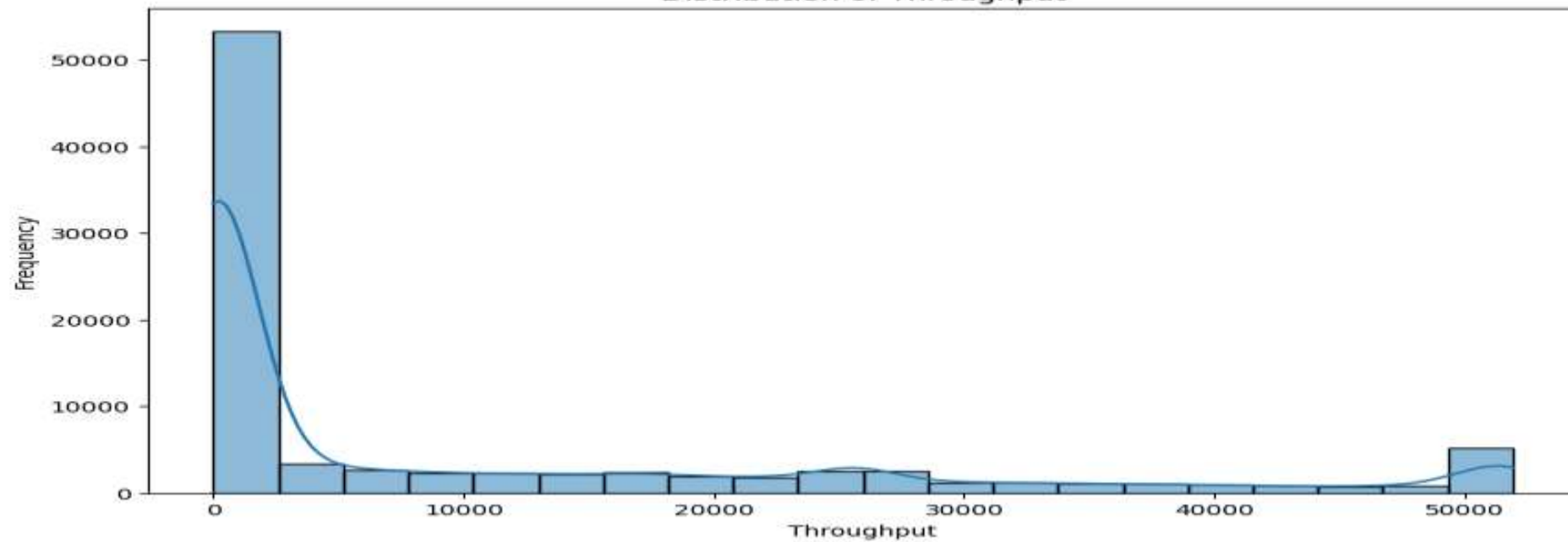
Distribution of TCP Retransmission



Distribution of RTT



Distribution of Throughput





### Engagement Scores

Measured using Euclidean distance from the less engaged cluster, indicating how engaged users are.



### Experience Scores

Calculated by assessing distances from the worst experience cluster, showcasing areas needing improvement.



### Top Satisfied Customers

Identifies the top 10 customers based on combined engagement and experience scores, highlighting success stories.



### Data-Driven Insights

Utilizing analytical methods to derive insights from satisfaction metrics for strategic decision-making.

SATISFACTION METRICS

# User Satisfaction Analysis

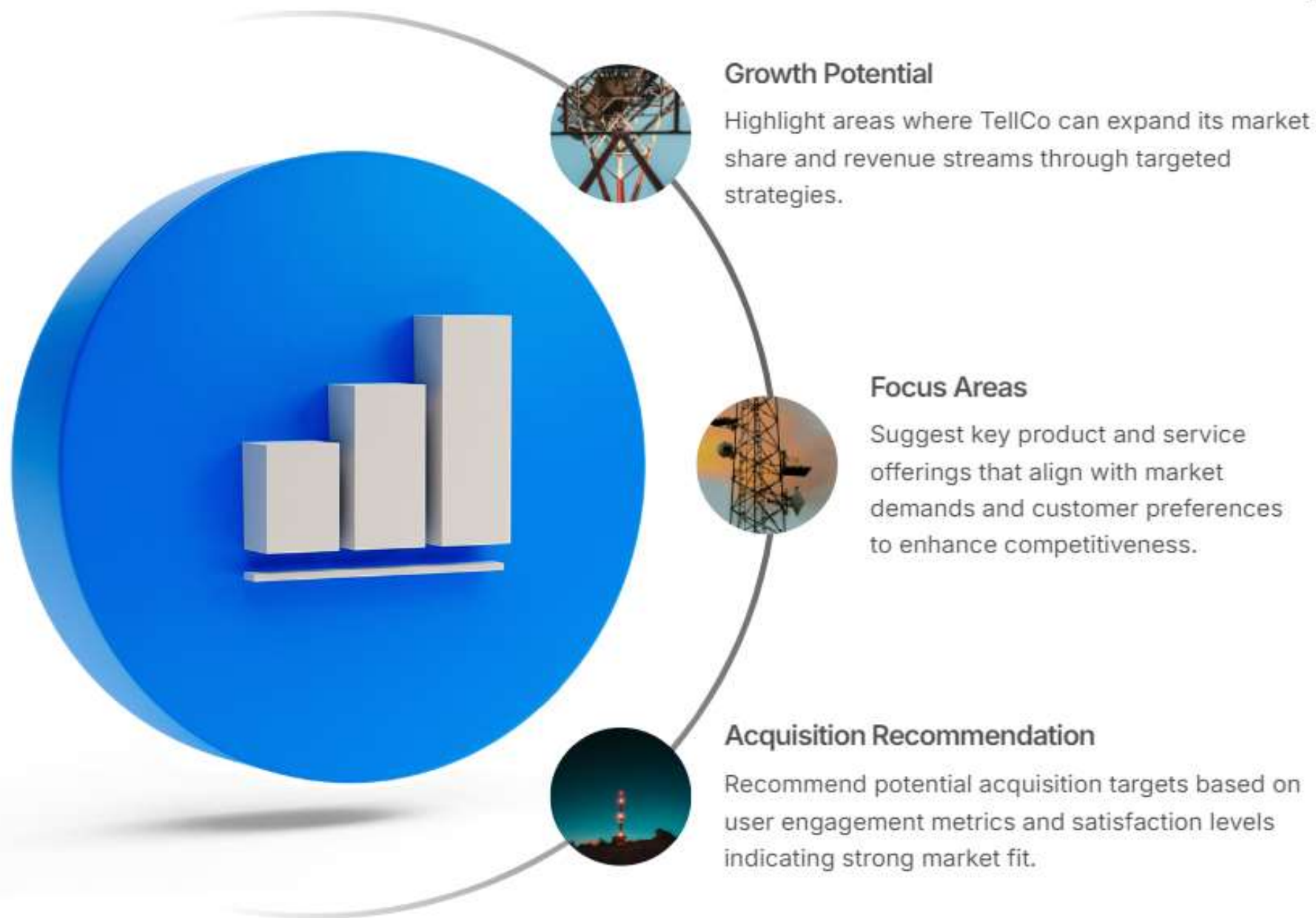
Evaluating Customer Engagement and  
Experience in Telecommunications



## GROWTH STRATEGI...

### Recommendations

Strategic Insights for TellCo's  
Growth and Development





# Conclusion

Key Insights on Customer Behavior and Engagement in Telecommunications

## Customer Behavior Trends

Analyzed shifts in customer preferences, revealing a strong inclination toward digital services.

## Acquisition Recommendations

Based on data analysis, targeted acquisition strategies are recommended for growth in competitive markets.

## Satisfaction Indicators

Survey results indicate overall satisfaction is linked to prompt support and issue resolution.



## Engagement Metrics

High engagement levels correlate with personalized communication, emphasizing targeted outreach strategies.

## Customer Experience Enhancement

Improvements in service delivery directly enhance customer satisfaction, driving loyalty.



*Thank You*