

Consulting Report

INSAID TELECOM



Group – 1006 | CDF – CAPSTONE PROJECT | 15th March 2022

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Overview and Introduction

Insaïd Telecom is one of the leading telecom players from India providing wide range of mobile and other telecom services.

BUSINESS UNDERSTANDING	SERVICE OFFERING	PRIORITY MARKETS
<p>Insaïd Telecom strives to provide customized services that cater to their client's needs.</p> <p>Essentially their core effort is geared towards understanding customer behavior and create an offering that helps their customers connect to Insaïd Telecom.</p>	<p>Insaïd Telecom understands that customizing offering is very important for its business to stay competitive.</p> <p>In order to do so Insaïd Telecom is seeking to leverage behavioral data from more than 60% of the 50 million mobile devices active daily in India to help its clients better understand and interact with their audiences.</p>	<p>The following consulting report is focused on priority markets of Rajasthan , Uttar Pradesh, Haryana, Jharkhand, Orissa, Telangana, and Assam to craft a data-driven marketing plan.</p>

Project Description

Insaid Telecom is keen to provide services customized to their customer needs. Businesses try to understand customer behavior and adjust their offerings so as to ensure their customers feel attached to their services.

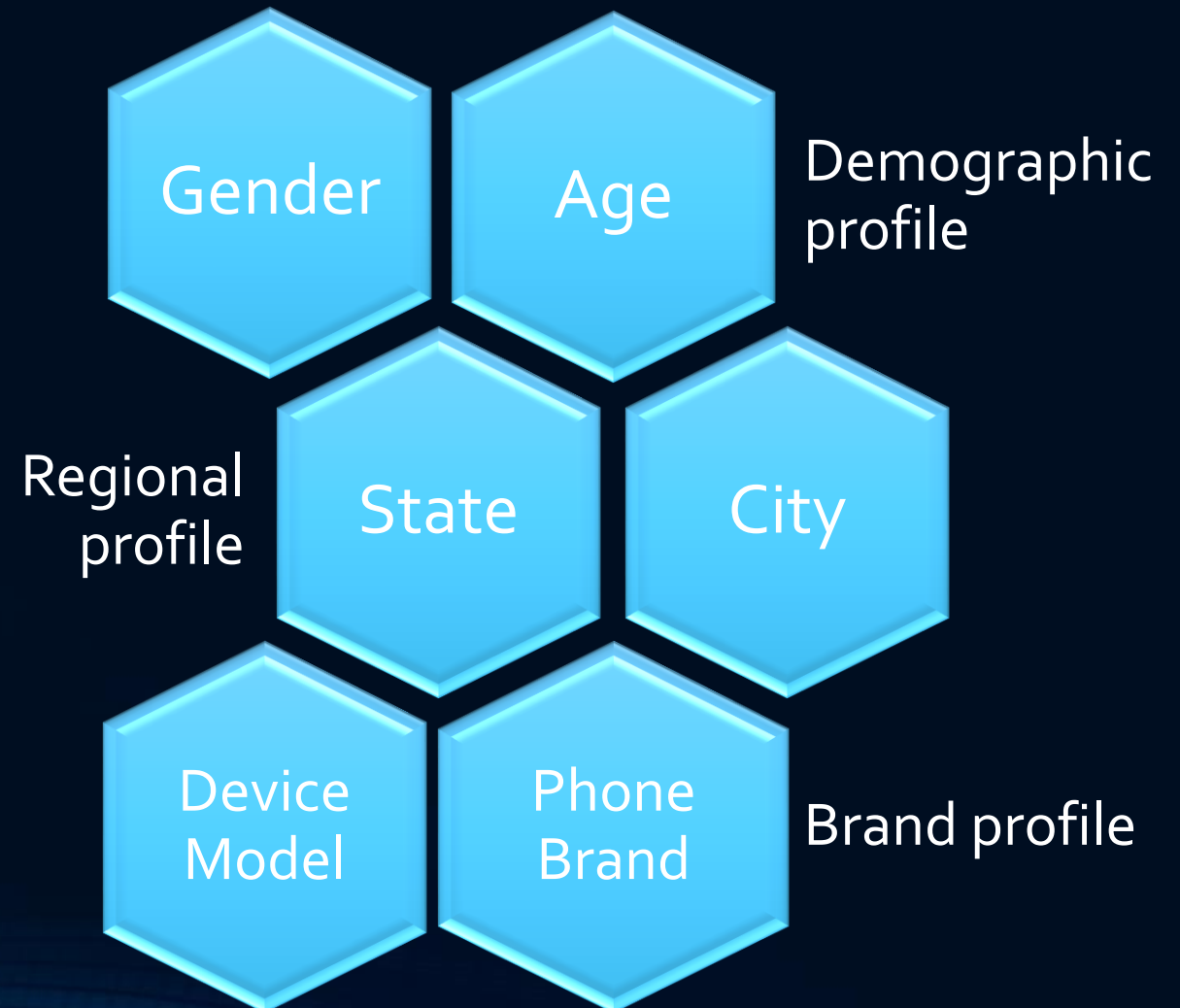
Insaid Telecom, one of the leading telecom players, understands that customizing offering is very important for its business to stay competitive.

Currently, **Insaid Telecom** is seeking to leverage behavioral data from more than 60% of the 50 million mobile devices active daily in India to help its clients better understand and interact with their audiences.

Strategy towards Problem Statement

Understand user's demographic characteristics based on their mobile usage, geolocation, and mobile device properties. This analysis is based on profile classification as below,

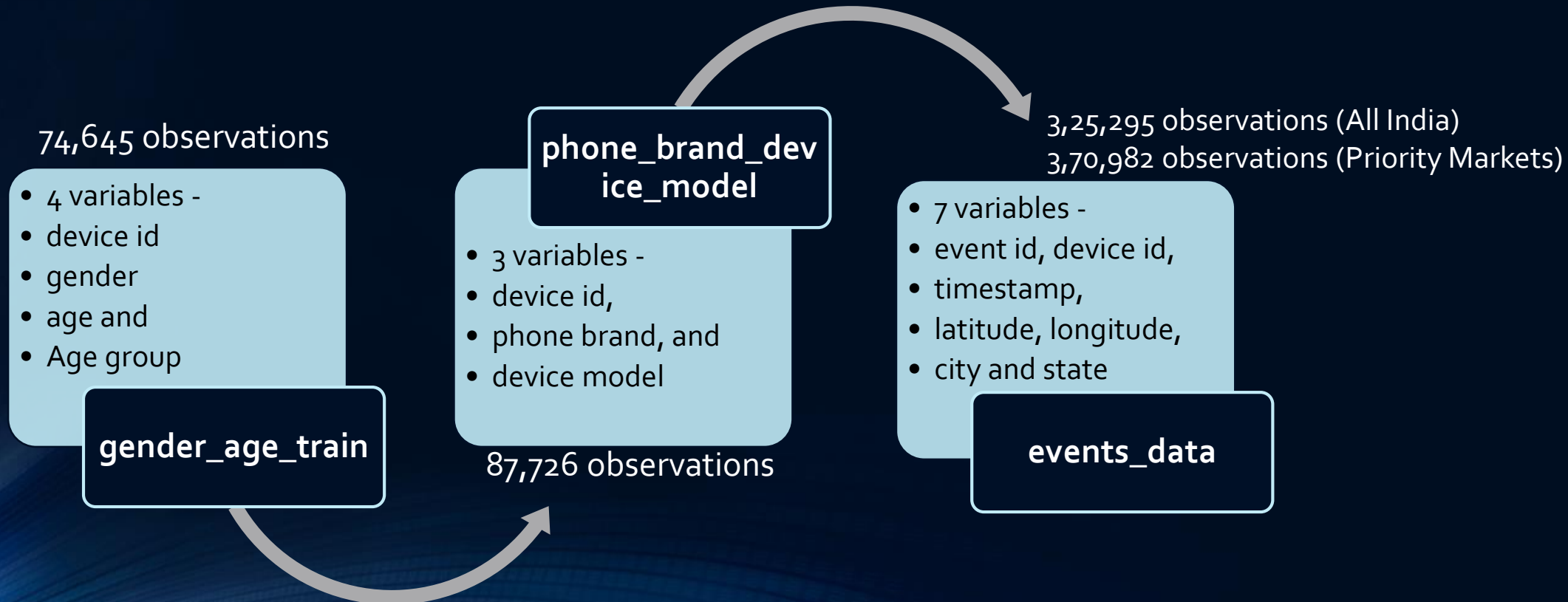
- Demographic profile
- Regional profile
- Brand profile



About Data Source

Extraction and download of the data set was done using two methods,

- Using "mysql.connector" package in Python and connecting to the MySQL instance as provided in the project description
- Using read.csv() to download the data sets for **events_data**



Summary for Data Mining

AFTER ANALYZING EACH DATA FRAME TO UNDERSTAND ITS DATA AND CHARACTERISTICS.

WE THEN LOOKED IF THERE WAS ANY MISSING DATA FROM THE COLUMNS OF EACH OF THE DATA FRAMES.

WE HAVE DEFINED A FUNCTION TO CHECK FOR MISSING DATA. WE OBSERVED THAT GENDER_AGE_TRAIN AND PHONE_BRAND_DEVICE_MODEL HAS NO MISSING DATA

EVENTS_DATA HAS 1.3% OF THE MISSING DATA ACROSS 4 COLUMNS DEVICE_ID (453 RECORDS), LONGITUDE AND LATITUDE (423 RECORDS EACH) AND STATE (377 RECORDS)

- We had performed an individual mapping of state values based on unique city names. This reduced the null values on states.
- Similarly, we performed same operation to eradicate the missing longitude and latitude as they both corresponded to a single a location of a city within a state.
- We identified that all the missing device IDs belonged to a single city of Jaipur. We checked of the Mode value of device IDs for that city and replaced the missing value with the mode value. Thus achieving 100% integrity across all the data sets across all the 3 target data frames

Summary for Data Mining

OUR CONSULTING TEAM FOCUSED ON THE PRIORITY MARKETS - RAJASTHAN , UTTAR PRADESH, HARYANA, JHARKHAND, ORISSA, TELANGANA, AND ASSAM TO STUDY THE USER'S BEHAVIOR BASED ON :

- MOBILE USAGE
- GEOLOCATION
- DEMOGRAPHIC PROFILING
- MOBILE DEVICE

AS PER THE STUDY NEED AND OBSERVATIONS ON THE ABOVE-MENTIONED PARAMETERS; WE HAVE CLEANED AND PURIFIED THE DATA TO EXTRACT USEFUL INSIGHTS AND KNOWLEDGE TO IDENTIFY THE BUSINESS OPPORTUNITIES IN THE FOCUSED MARKETS.

Summary for Data Mining

STEPS TAKEN FOR DATA CLEANING

TABLE : *GENDER_AGE_TRAIN*

- No null value found for the SEVEN focused markets
- Few data points for the ages 1, 6, 90, 94, 96 observed. These few data points were not giving us much information about the respective users. Hence we have removed such observations from our further analysis.

TABLE : *PHONE_BRAND_DEVICE_MODEL*

- No null value found for the SEVEN focused markets
- Most of the phone brand names and model names were in Chinese language. To overcome the challenge, we developed translator function to translate phone brand and model names in to English language to make it understandable for our further analysis.

Summary for Data Mining

STEPS TAKEN FOR DATA CLEANING

TABLE: *EVENTS_DATA*

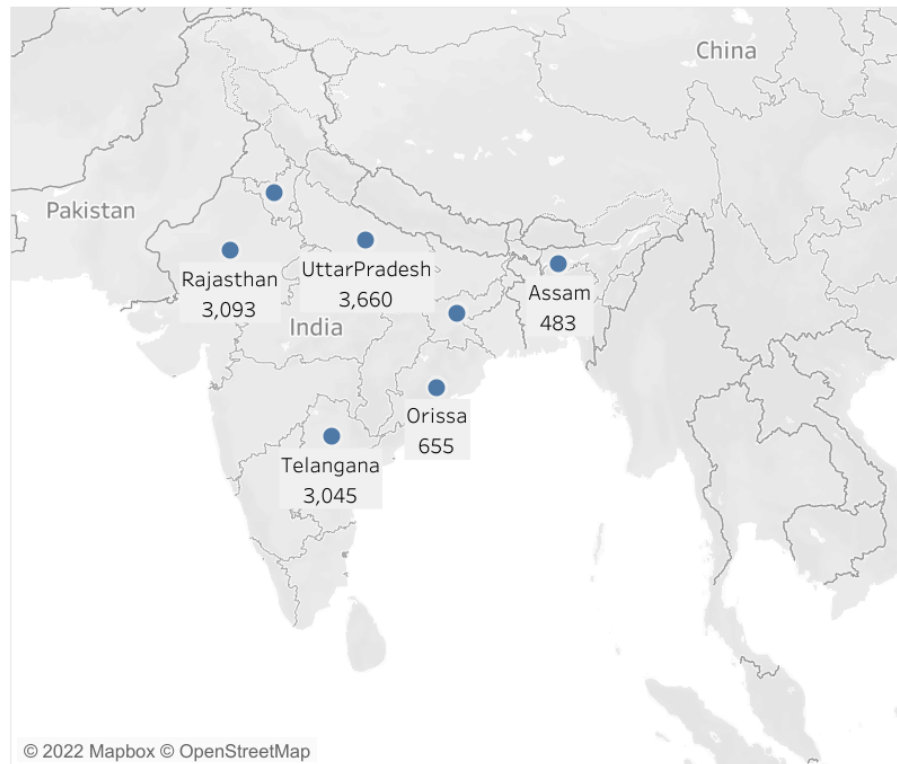
- Observations found for all missing state belonged to unique city value of 'Jaipur' and all the null values were replaced using the unique value.
- In all **66** missing observations found for latitude and longitude.
 - ❑ Using **boxplot**—identified the outlier / wrong information
 - ❑ Developed “**web service**” (**folium maps**) to cross check the correct longitude and latitude to replace the missing information.
- Observations found for **81** Device to be missing which all belonged to unique city of 'Jaipur'. We have used the most frequently used device Id to fill in for the missing values

Summary for Data Mining

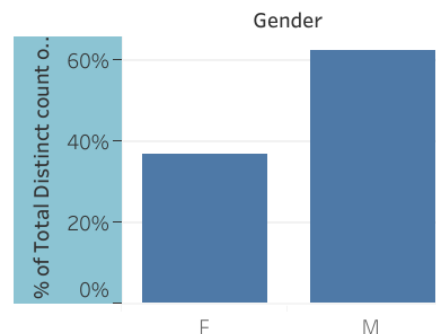
USER PROFILING BY STATE, GENDER, TOP 10 PHONE BRANDS AND AGE SEGMENT

Distribution of Users

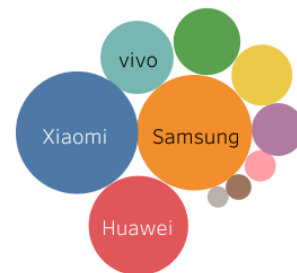
FocusStates_Unique_DeviceId



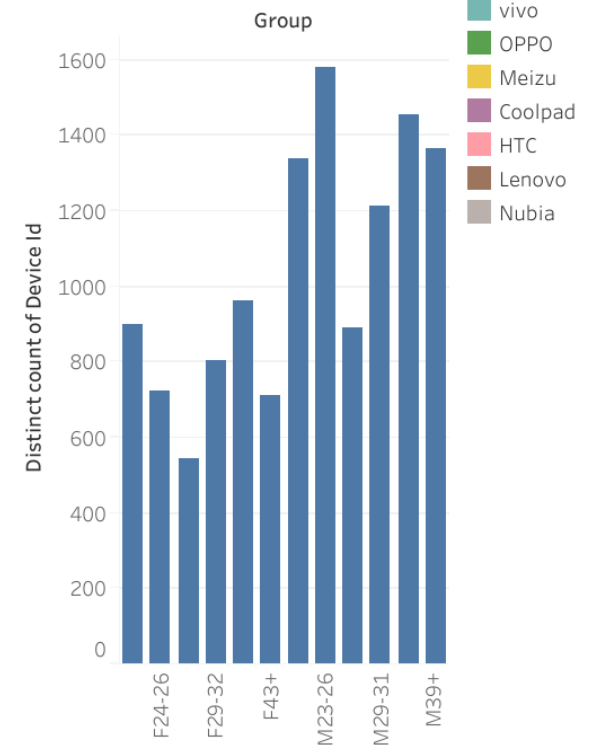
Users_Gender



Users_Top10_Ph
oneBrands



Users_Age_Segment



Proposed Solution

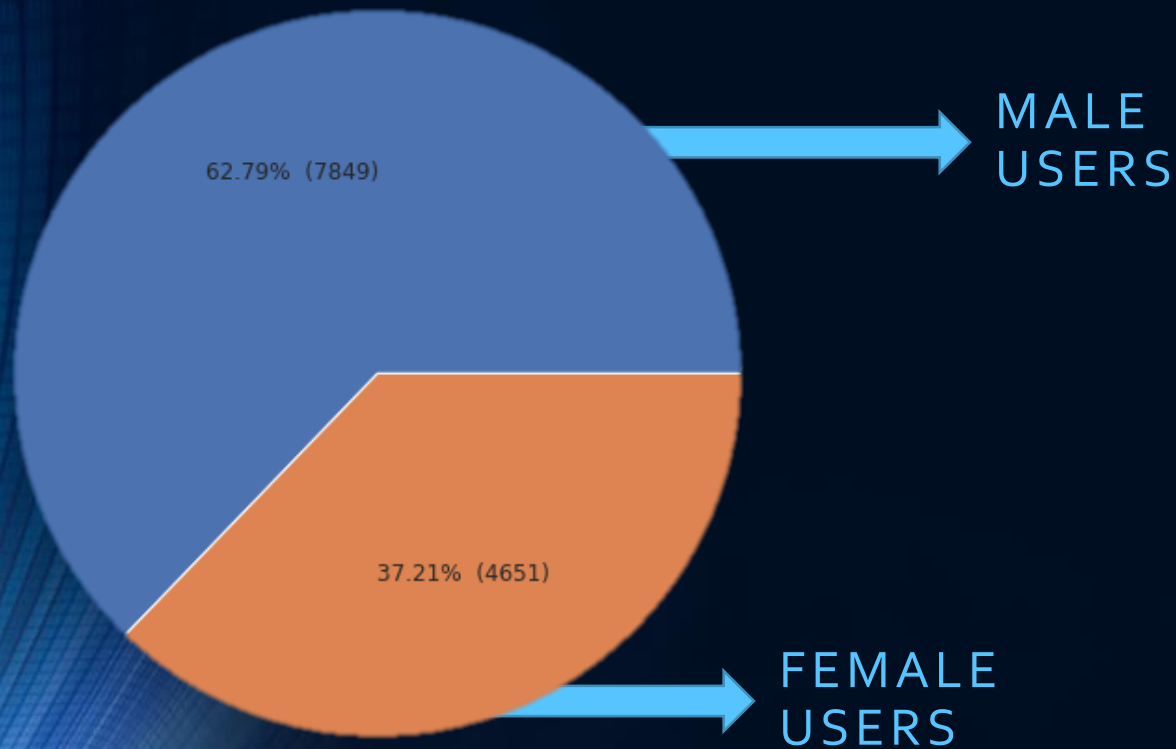
WE ARE PROPOSING THE FOLLOWING SOLUTION BASED ON 2 DIMENSIONS

- Looking at combination of demographic, regional and brand profiles
- Looking at User behavior across the above said profiles

FROM A DEMOGRAPHIC STANDPOINT WE HAVE MADE THE FOLLOWING OBSERVATIONS

- 64% of Devices are being used by Males and 36% are being used by Females
- Users who are in their 20s and 30s (years of age) are using the mobile devices more frequently than people of other ages.
- Decline in usage can be observed from the age of 40 yrs to 50 yrs.
- High density of users can be observed in Rajasthan, Uttar Pradesh and Telangana
- Xiaomi is the most popular phone brand followed by Samsung and Huawei
- Redmi note is the most popular device model being used, followed by MI series and Galaxy Note.

Proposed Solution

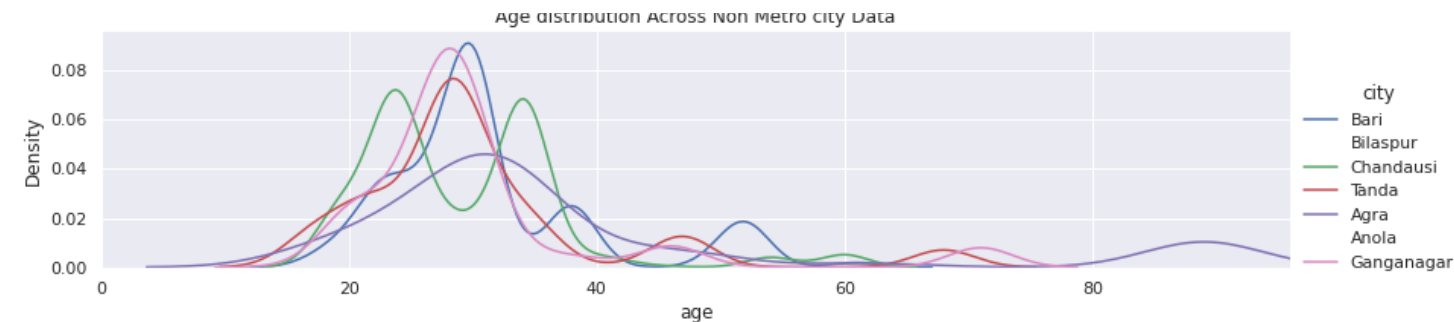
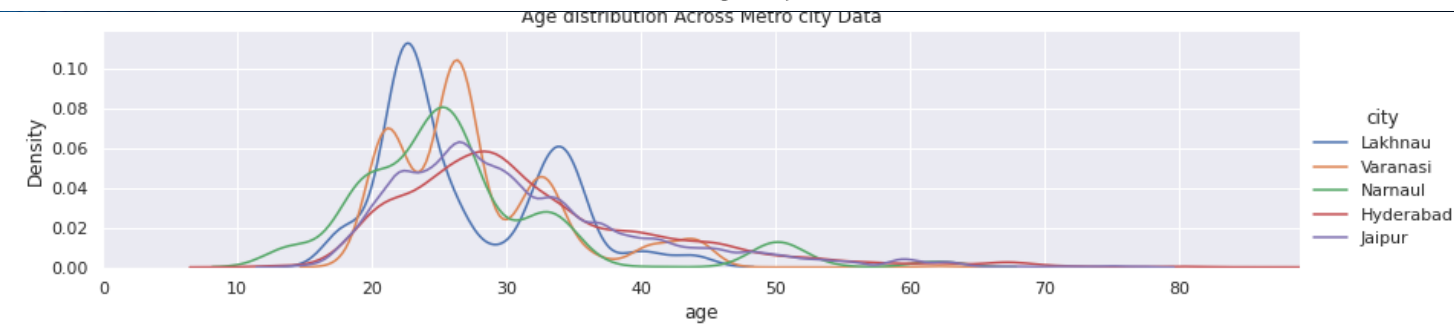
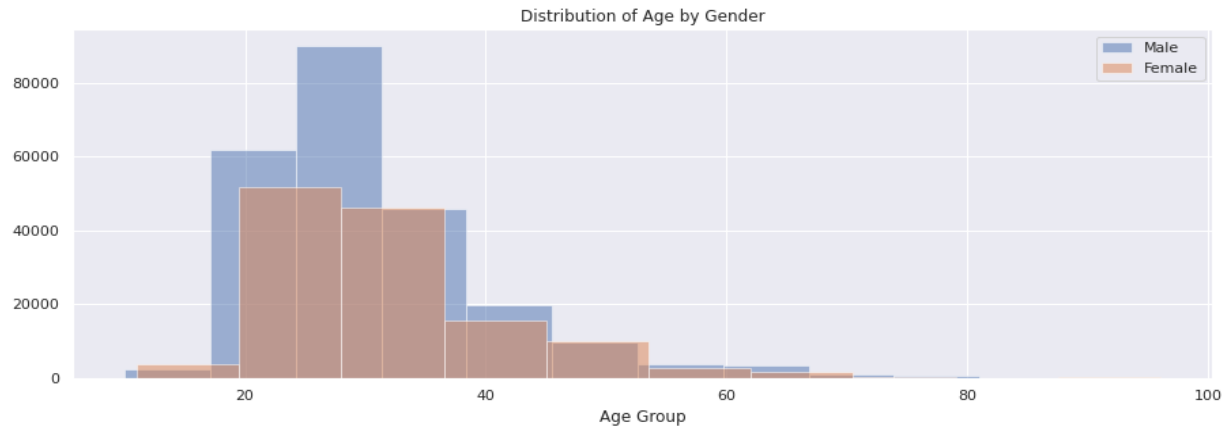


DEMOGRAPHIC PROFILE

INSAID Telecom has a disproportionate or an unequal distribution by Gender dominated by male users as majority of phone users (63%) are men. This indicates higher market potential with women users. In order to develop the woman user base from 37%, a special promotional plan need to be developed that can engage with Female users.

Male users have higher revenue potential with strong spread of the user base and promotional activities with product tie-ins with respect to Male users can yield better advertising results.

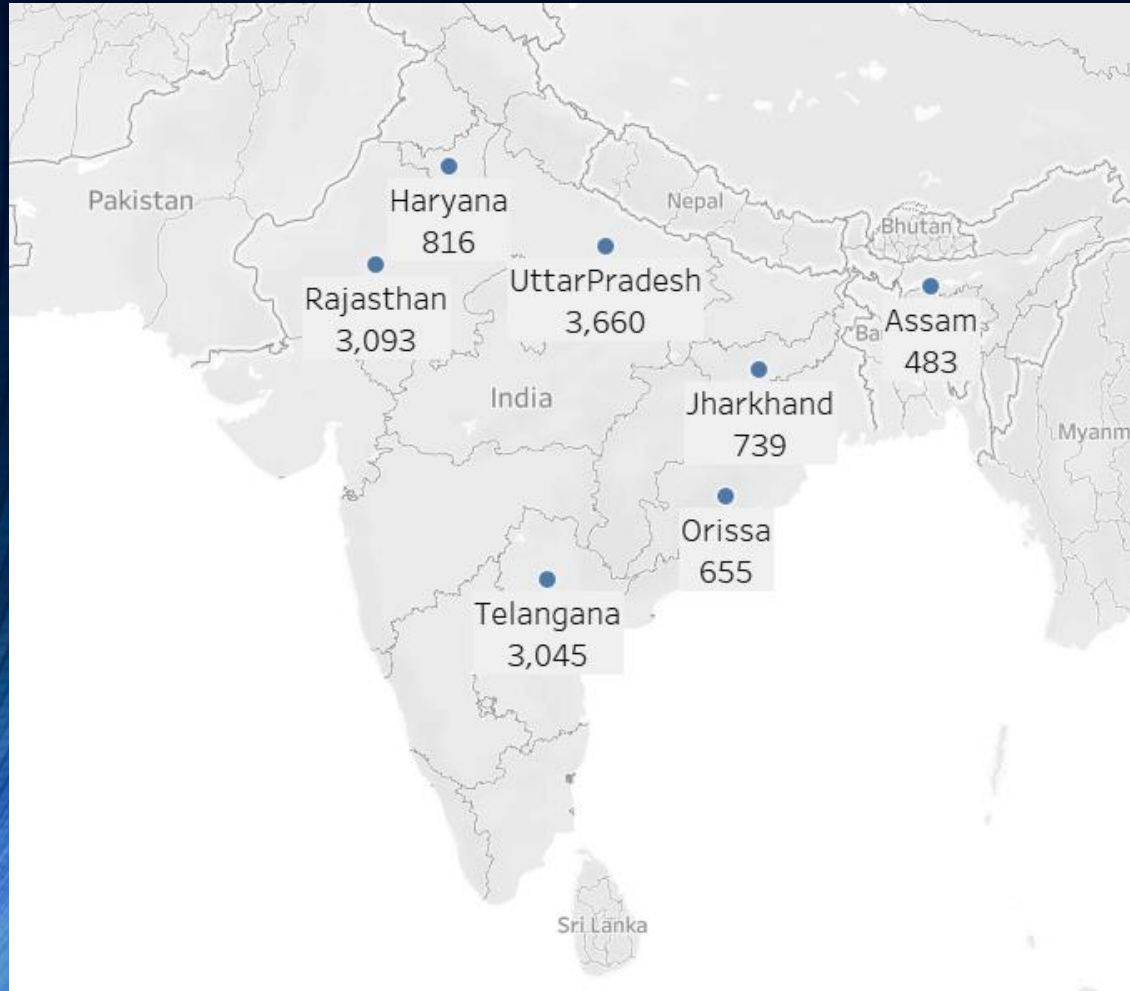
Proposed Solution



DEMOGRAPHIC PROFILE

INSAID Telecom need to have promotional programs that can resonate with younger generation, i.e., users that are from 20 to 40 years of age. Especially this age group becomes very niche for metro cities as the focus group trends between 20 years to 30 years of age.

Proposed Solution



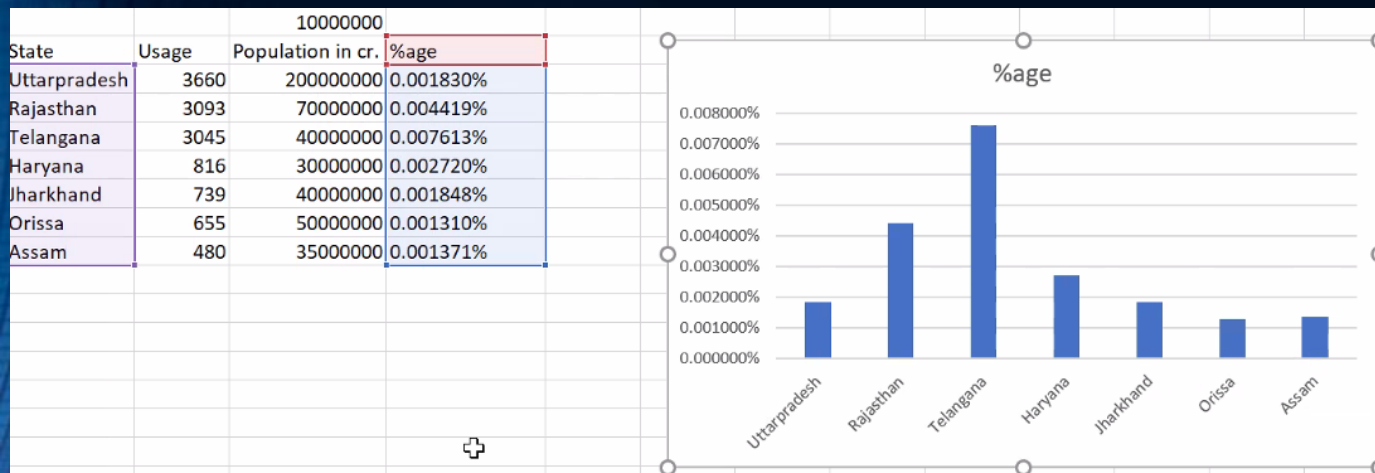
REGIONAL PROFILE

INSAID Telecom has a large user base in Rajasthan, Uttar Pradesh and Telangana which can be used to create a larger revenue oriented promotional activities. Bulk promotions across these states will yield higher RoI.

Less denser states with lower spread of users like Orissa, Haryana, Assam and Jharkhand need regional specific promotional plans to scale up the user base through various means like app subscriptions etc.

Proposed Solution

REGIONAL PROFILE

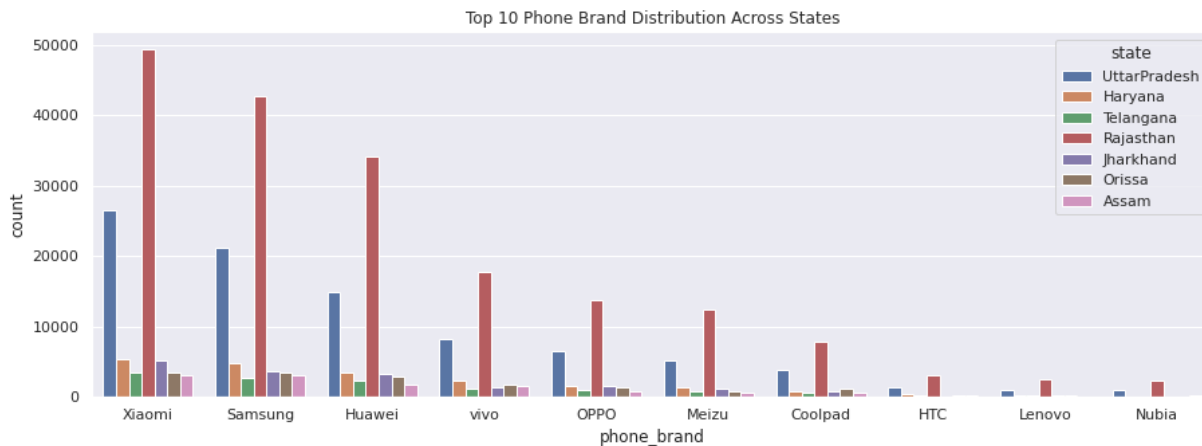


INSAID Telecom has a larger scope of revenue in Uttar Pradesh as usage is lower compared to the population size in the state. Upscaling of the mobile plans selectively in this state can help increase revenue for the company

Comparatively Telangana despite lower population has higher user base that can be used for upscaling of promotional activities in bulk.

Proposed Solution

BRAND PROFILE

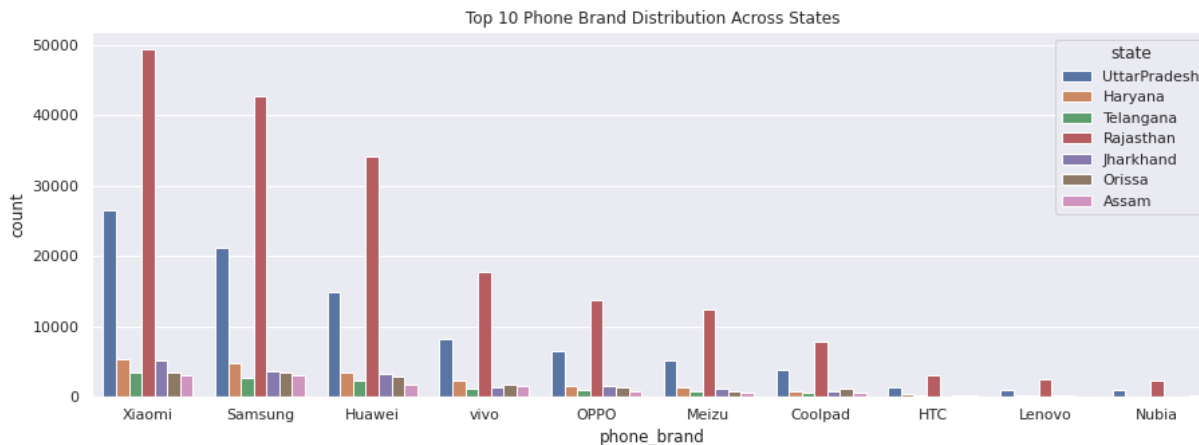


Xiaomi, Samsung and Huawei are more popular brands across **INSAID Telecom** users. Personalized promotion programs that can tie well into these phone brands would help engage with the users and benefit from the promotions. **INSAID Telecom's** clientele can leverage tie-ups with these phone brands to run successful marketing programs.

Proposed Solution

BRAND PROFILE

Xiaomi, Samsung and Huawei are more popular brands across **INSAID Telecom** users. Personalized promotion programs that can tie well into these phone brands would help engage with the users and benefit from the promotions.

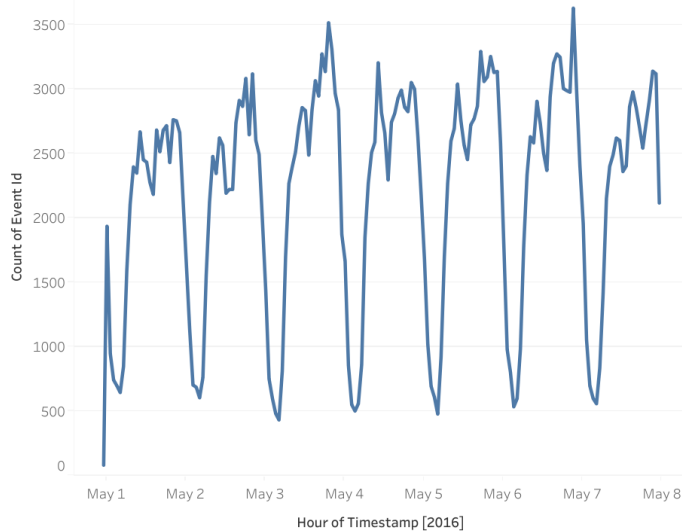


These device models can have micro targeted promotional activity that will enhance user experience with better device level engagement.

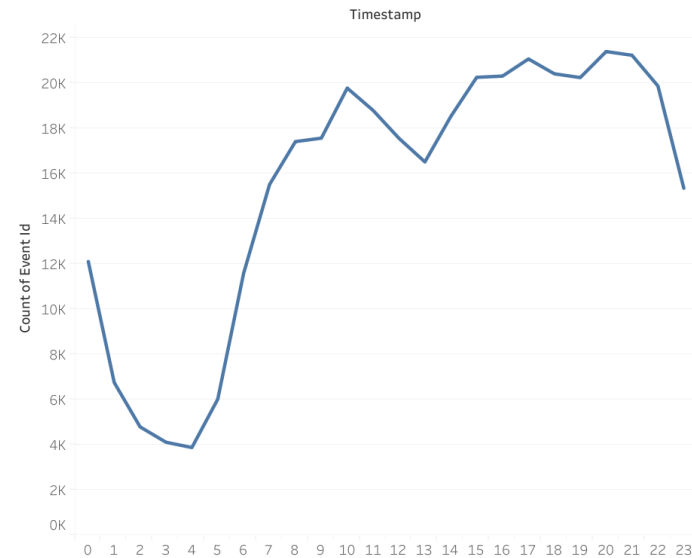
Proposed Solution

USER BEHAVIOR

Hourly Distribution phone Calls



Hourly Distribution phone Calls(2)



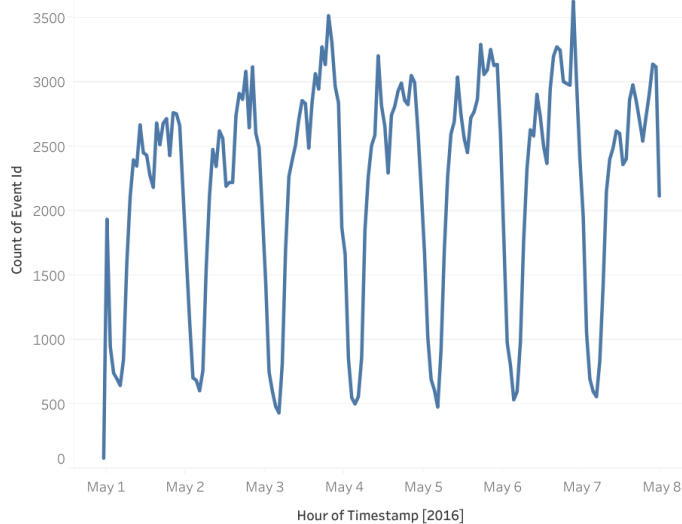
Events peak towards evening of the day (assuming events are phone calls made) indicate a busy time towards end of the day and not an ideal time for any promotional activity.

So promotional activity and any marketing campaigns can be timed towards morning times from 10 AM to 3 PM for better user engagement where the event volume is not so high.

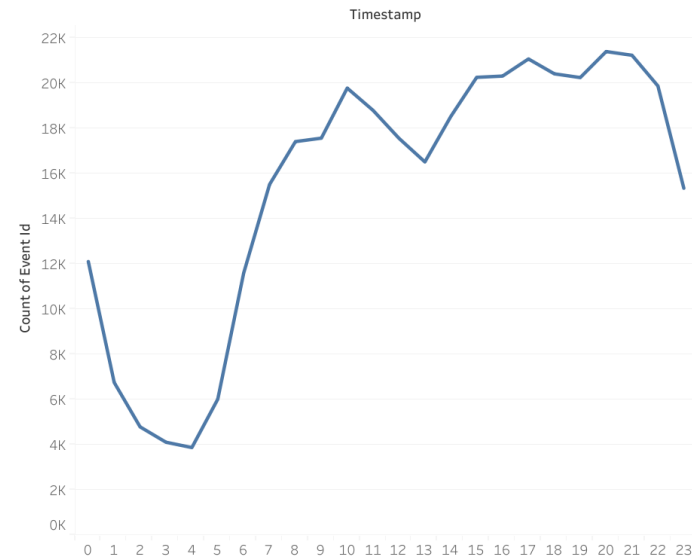
Proposed Solution

USER BEHAVIOR

Hourly Distribution phone Calls



Hourly Distribution phone Calls(2)



Like wise Wednesdays and Saturdays seem be peaking week days for event activity. So promotional campaigns can introduced during the other days in the week to create a higher user engagement.

Tools Used



Conclusion

INSAID Telecom needs to have a well focused marketing plan with targeted promotional activity to become market leader.

- Special promotional plan need to be developed that can engage with Female users.
- Promotional programs that can resonate with younger generation from the age group of 20 to 40 years which becomes a niche focus with age group of 20 to 30 years within metro cities.
- Bulk promotions across large user base of Rajasthan, Uttar Pradesh and Telangana will have high revenue potential.
- Tie-ups with top brands like Xiaomi and Samsung with device level micro targeting will help drive higher RoI across advertising programs.
- Carefully planned Go-To-Market strategy like running of promotional or ad campaigns during non-peak hours (10 am to 3 pm) and non peak working days – Mon, Tues, Thurs, Fri and Sun can have better user engagement.

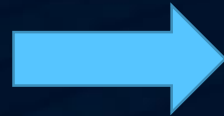
There is a large active base of users that runs into millions for **INSAID Telecom** , they can scale up their business by up-selling to the young generation Male users by leveraging existing user base from metros like Jaipur, Lucknow, Hyderabad and Varanasi.

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Team 1006

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of the Group



Mandeep



Sreeram



Praveen
Kumar



Chetan



Rahul Bali



Kiran
Joseph

Yogesh

Asha

Shivani



Satya



Mahesh

Rahul
Kulkarni

Thank You

