# ABC Call Volume Trend Analysis

## Tools to Optimize Your Customer Experience

**Social Media Listening Tools:** Listen to what customers are posting about your brand.

**Behavioral Analytics:** Learn how customers react after visiting your website.

**Surveys:** Design questions that pertain to customers' unique journeys with your brand.

**Suggestion Boxes:** They don't have to be physical boxes, they can be an email address or a section of your support site.

**Customer Relationship Management (CRM):** Easily track and manage customer relationships throughout their journey.

# Project Description:

- The attached dataset is of Inbound calls of an ABC company from the insurance category consists of a Customer Experience (CX) Inbound calling team for 23 days. Data includes Agent Name, Agent ID, Queue Time [duration for which customer have to wait before they get connected to an agent], Time [time at which call was made by customer in a day], Time Bucket [for easiness we have also provided you with the time bucket], Duration [duration for which a customer and executives are on call, Call Seconds [for simplicity we have also converted those time into seconds], call status (Abandon, answered, transferred).

- A customer experience (CX) team consists of professionals who analyze customer feedback and data, and share insights with the rest of the organization. Typically, these teams fulfil various roles and responsibilities such as: Customer experience programs (CX programs), Digital customer experience, Design and processes, Internal communications, Voice of the customer (VoC), User experiences, Customer experience management, Journey mapping, Nurturing customer interactions, Customer success, Customer support, Handling customer data, Learning about the customer journey.
- Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, Intelligent Routing are some of the most impactful AI-empowered customer experience tools we can use in this project

- In a Customer Experience team there is a huge employment opportunities for Customer service representatives A.k.a. call center agents, customer service agents. Some of the roles for them include Email support, Inbound support, Outbound support, social media support. • Inbound customer support is defined as the call center which is responsible for handling inbound calls of customers. Inbound calls are the incoming voice calls of the existing customers or prospective customers for our business which are attended by customer care representatives.
- Inbound customer service is the methodology of attracting, engaging, and delighting our customers to turn them into our business' loyal advocates. By solving our customers' problems and helping them achieve success using our product or service, we can delight our customers and turn them into a growth engine for our business

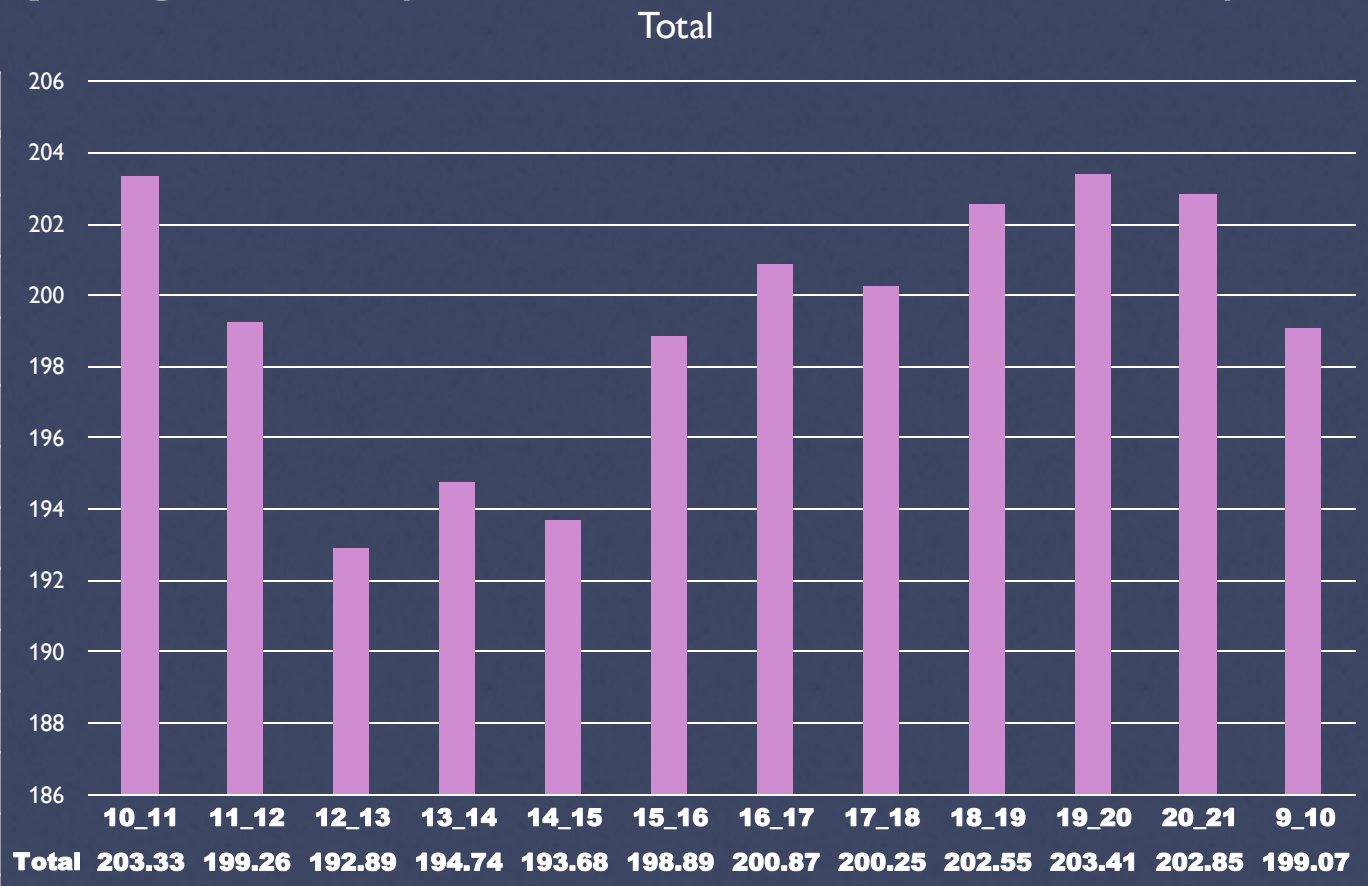
# Tech-Stack Used:

- Microsoft Excel 365: It enables users to format, organize and calculate data in a spreadsheet. It organize data in an easy-to-navigate way. We need not to perform any complex mathematical functions. And it turn piles of data into helpful graphics and charts.

- Microsoft power point: It is used to make a report (PPT) to be presented to the leadership team.

# A. Calculate the average call time duration for all incoming calls received by agents (in each Time Bucket).

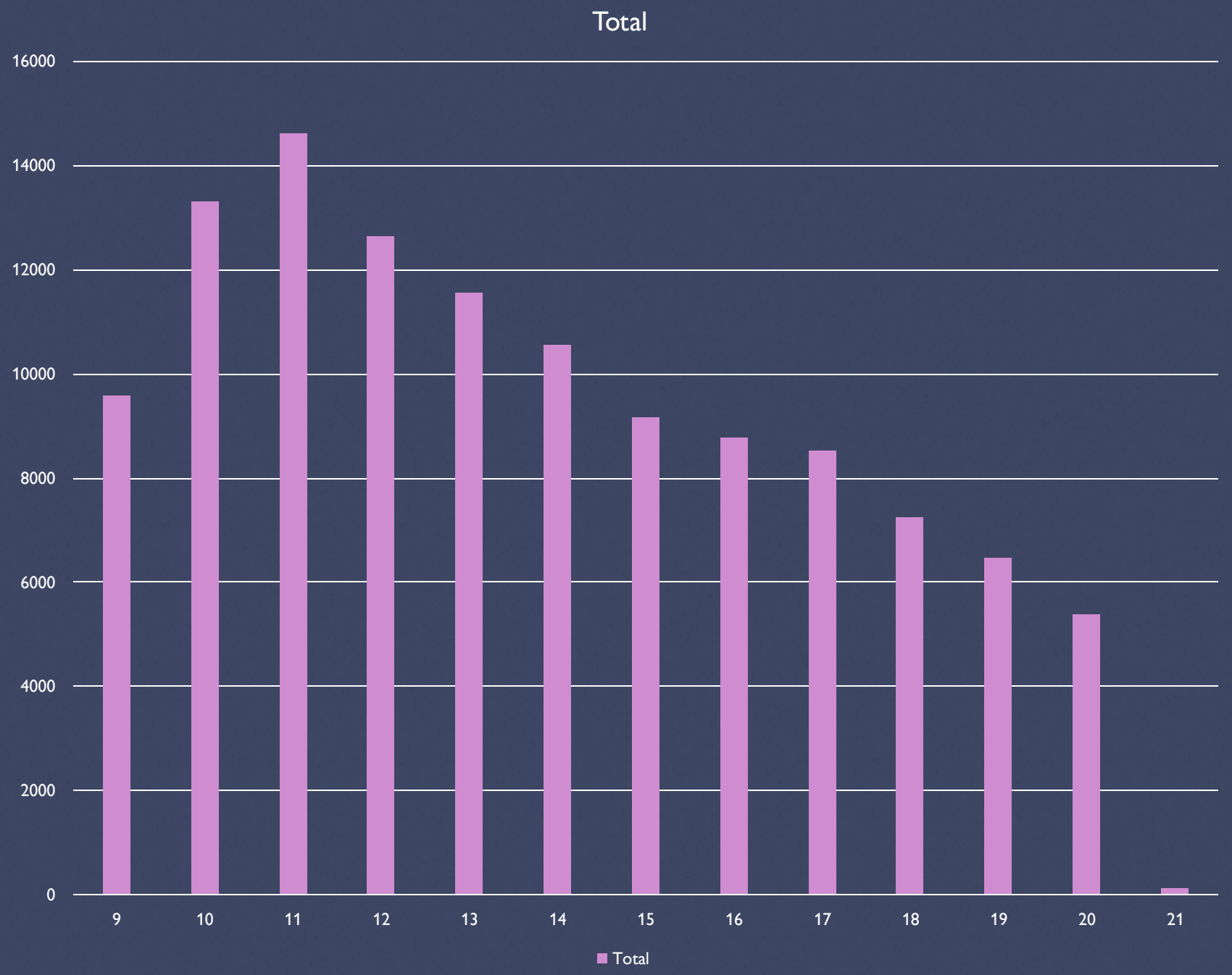
| Time Bucket | Average of Call Seconds (s) |
|---|---|
| 9_10 | 199.1 |
| 10_11 | 203.3 |
| 11_12 | 199.3 |
| 12_13 | 192.9 |
| 13_14 | 194.7 |
| 14_15 | 193.7 |
| 15_16 | 198.9 |
| 16_17 | 200.9 |
| 17_18 | 200.2 |
| 18_19 | 202.6 |
| 19_20 | 203.4 |
| 20_21 | 202.8 |
| Grand Total | 198.6 |



- Insights:
- 1. Time Bucket is measured in the Rows and average of Call Seconds is measured in the Values section. And we put Call Status in the Filters section.
- 2. The total average of call time duration which are answered by the agents is 198.6 seconds.
- 3. The average call time duration for all incoming calls received by agents is the highest in between 10 am to 11 am and from 7 pm to 8 pm
- 4. The average call time duration for all incoming calls received by agents is the least in between 12 noon to 1 pm

B. Show the total volume/ number of calls coming in via charts/ graphs [Number of calls v/s Time]. You can select time in a bucket form (i.e., 1-2, 2-3, …..)

| Time | Count of Customer Phone No |
|---|---|
| 9 | 9588 |
| 10 | 13313 |
| 11 | 14626 |
| 12 | 12652 |
| 13 | 11561 |
| 14 | 10561 |
| 15 | 9159 |
| 16 | 8788 |
| 17 | 8534 |
| 18 | 7238 |
| 19 | 6463 |
| 20 | 5389 |
| 21 | 116 |
| Grand Total | 117988 |


Total
16000
14000
12000
10000
8000
6000
4000
2000
0
9
10
11
12
13
14
15
16
17
18
19
20
21
Total

**Insights:**

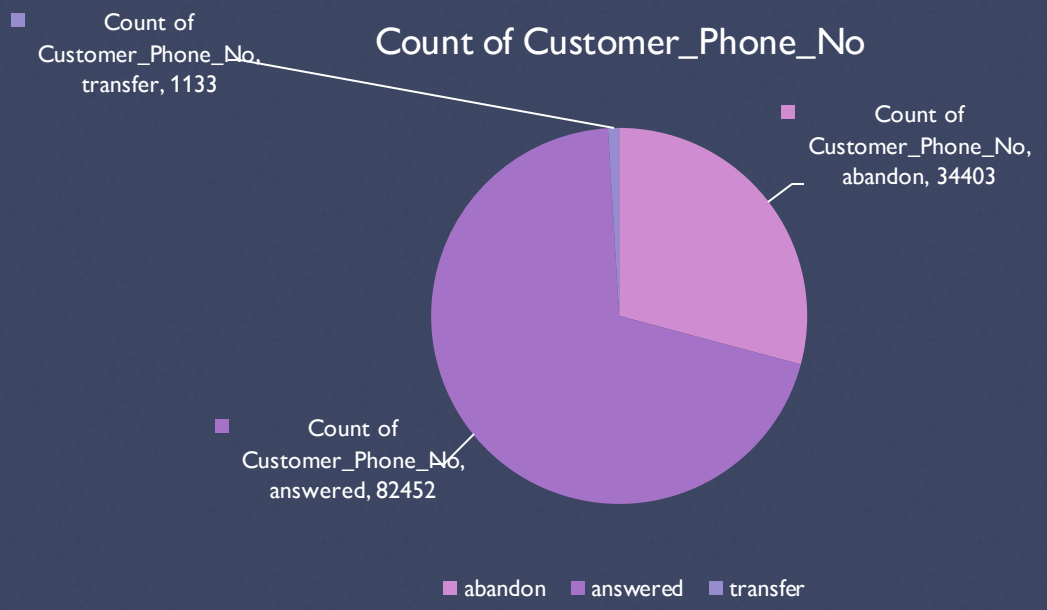
- I plotted Time Bucket in the rows and took Count of Customer Phone No in the Values section.
- The customers call the most in between 11 am to 12 noon.
- The customers call the least in between 8 pm to 9 pm.

C. As we can see current abandon rate is approximately 30%. Propose a manpower plan required during each time bucket [between 9am to 9pm] to reduce the abandon rate to 10%. (i.e., We must calculate minimum number of agents required in each time bucket so that at least 90 calls should be answered out of 100.)

- Assumption
- **On average an agent occupied for 60% of his total actual working Hrs (i.e 60% of 7.5 Hrs) is 4.5 hours**

| total working hours | 9 |
|---|---|
| lunch and snack break | 1.5 |
| remaining hours | 7.5 |

| Call Status | Count of Customer Phone No | Count of Customer_Phone_No2 | Average of Call Seconds (s) |
|---|---|---|---|
| abandon | 34403 | 29.16% | 0 |
| answered | 82452 | 69.88% | 198.6227745 |
| transfer | 1133 | 0.96% | 76.14651368 |
| Grand Total | 117988 | 100.00% | 139.5321473 |



| Row Labels | Sum of Call Seconds | sum of Hour |
|---|---|---|
| 01-Jan | 676664 | 187.96 |

| Total agent equals 60% | Agent required for 90% |
|---|---|
| 42 | 63 |

Insights

- Total agents working can be calculated by average calls on a single day divided by total time spend by one man in a single day. total agent = 187.96/4.5 = 42
- If agents are working for 4.5 hrs a day and 60% calls are getting answered. If we want 90% of the calls to get connected, we apply unitary method to find how many more employee we want. total agent = 90*42/60 = 63 agents

| Time Bucket | Count of Call Seconds (s) | proportion of call seconds | agents per shift |
|---|---|---|---|
| 9_10 | 8.13% | 0.081262501 | 5 |
| 20_21 | 4.67% | 0.046657287 | 3 |
| 19_20 | 5.48% | 0.054776757 | 3 |
| 18_19 | 6.13% | 0.061345222 | 4 |
| 17_18 | 7.23% | 0.072329389 | 5 |
| 16_17 | 7.45% | 0.074482151 | 5 |
| 15_16 | 7.76% | 0.077626538 | 5 |
| 14_15 | 8.95% | 0.089509103 | 6 |
| 13_14 | 9.80% | 0.097984541 | 6 |
| 12_13 | 10.72% | 0.107231244 | 7 |
| 11_12 | 12.40% | 0.123961759 | 8 |
| 10_11 | 11.28% | 0.112833508 | 7 |
| Grand Total | 100.00% | total agents | 63 |

1. First, we created pivot table. Date & Time is dragged down to Rows, Call Status to Columns, while taking count Call Duration in the Values section.
2. Then, we calculated the average of abandon, answered and transfer by using the average excel formula.
3. 29% of the calls are abandoned, 1% is transferred, while 70% of the calls are answered in the daytime.
4. Total agents required to answer the 90% of the calls per day is 63.
5. The minimum number of agents required for each time bucket is calculated by 63 * count of time (calculated in the 2nd question).

D. Let's say customers also call this ABC insurance company in night but didn't get answer as there are no agents to answer, this creates a bad customer experience for this Insurance company. Suppose every 100 calls that customer made during 9 Am to 9 Pm, customer also made 30 calls in night between interval [9 Pm to 9 Am] and distribution of those 30 calls are as follows:

| Distribution of 30 calls coming in night for every 100 calls coming in between 9am - 9pm (i.e. 12 hrs slot) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9pm- 10pm | 10pm - 11pm | 11pm- 12am | 12am- 1am | 1am - 2am | 2am - 3am | 3am - 4am | 4am - 5am | 5am - 6am | 6am - 7am | 7am - 8am | 8am - 9am |
| 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 3 | 4 | 4 | 5 |

| | |
|---|---|
| **Average calls daily(9AM-9PM)** | **5130** |
| **Average calls in night (9PM-9AM)** | **1539** |
| **Additional hours required** | **76.41** |
| **Agents Required** | **17** |

| Time bracket | calls abandon in night | Time Distribution | Agents in time _bracket |
|---|---|---|---|
| 9pm-10pm | 3 | 0.10 | 2 |
| 10pm-11pm | 3 | 0.10 | 2 |
| 11pm-12pm | 2 | 0.07 | 1 |
| 12pm-1am | 2 | 0.07 | 1 |
| 1am-2am | 1 | 0.03 | 1 |
| 2am-3am | 1 | 0.03 | 1 |
| 3am-4am | 1 | 0.03 | 1 |
| 4am-5am | 1 | 0.03 | 1 |
| 5am-6am | 3 | 0.1 | 2 |
| 6am-7am | 4 | 0.13 | 2 |
| 7am-8am | 4 | 0.13 | 2 |
| 8am-9am | 5 | 0.17 | 3 |
| Grand total | 30 | 1 | 19 |

- I first calculated the Time Distribution by dividing each calls distribution by total calls i.e., 30.
- The number of agents required for each time bucket is calculated by 17 * Time Distribution
- 17 is calculated above by dividing the additional hours required to answer the night calls by 4.5 (actual working hours of agents).
- Also, while calculating, the round figure is taken into consideration as there cannot be 1.5 men working.

Insights:

- The customers call the least in the evening. So, the company can reduce the number of agents at that time for answering the calls.
- The company can hire 17 customer support agents for the night shift work.
- The company can shift some of the day workers for the night shift.
- The employees who are working 9 am to 9 pm. The manager can change some of the workers shift from 5 am to 2 pm and some workers from 2 pm to 11 pm to get the most calls answered.
- The company can make the employers divide into 3 parts too, so that the agents are always available 24/7. 6. We found there were few outliers in the data. And if we have removed that outliers, then the answers would have been different.

## Results:

1. I learned how an analyst can make an impact in customer service department.
2. I learned how a company deals with the customers to give them the most satisfaction.
3. I got to know about the IVR Duration, which is an AI tool, who answer the calls to get to know the customer exact question and then transfer it to the right agent to get the customer's queries get answered.
4. This project was easy to get the answers as the data provided by the team have already calculated the time bucket and converted the calls duration into seconds, so we do not have to spend time on it to calculate.
5. I learned about the behavioral analytics.