ABC Call Volume Trend Analysis

Final Project-4

DESCRIPTION:

The final project 4 , we have been provided with a dataset of a Customer experience (CX) Inbound calling team for 23 days. Data includes Agent_Name , Agent_ID, Queue_Time [duration fro which customer have to wait before they het connected to an agent],Time[time at which call was made by customer in a day],Time_Bucket ,Duration[duration for which a customer and executives are on call, Call_Seconds[time in 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

Let’s look at some of the most impactful AI-empowered customer experience tools you can use today:

Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, Intelligent Routing

In a Customer Experience team there is a huge employment opportunities for Customer service representatives A.k.a. call centre 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 centre which is responsible for handling inbound calls of customers. Inbound calls are the incoming voice calls of the existing customers or prospective customers for your business which are attended by customer care representatives. Inbound customer service is the methodology of attracting, engaging, and delighting your customers to turn them into your business' loyal advocates. By solving your customers' problems and helping them achieve success using your product or service, you can delight your customers and turn them into a growth engine for your business

Business Understanding:

Advertising is a way of marketing your business in order to increase sales or make your audience aware of your products or services. Until a customer deals with you directly and actually buys your products or services, your advertising may help to form their first impressions of your business. Target audience for businesses could be local, regional, national or international or a mixture. So they use different ways for advertisement. Some of the types of advertisement are: Internet/online directories, Trade and technical press, Radio, Cinema, Outdoor advertising, National papers, magazines and TV. Advertising business is very competitive as a lot of players bid a lot of money in a single segment of business to target the same audience. Here comes the analytical skills of the company to target those audiences from those types of media platforms where they convert them to their customers at a low cost

ABC, a fictitious call center, seeks openness and insight into the information gathered. They want to know how many calls were answered and how many were abandoned, as well as the speed with which they were responded, the duration of the calls, and overall customer satisfaction. They also want a dashboard with an accurate picture of long-term trends in consumer and agent behavior

Contents

1)Project Objectives: Problem Statement

2)Data Sourcing

3)Data Cleaning

4)Dax Formulas and Data Visualization

5)Findings and Recommendations

1. Project Objectives

The project seeks to identify

•Customer satisfaction in general
•Overall, how many calls were answered/abandoned
•Time-based calls
•Average call response time
•Average handling time (talk duration) versus calls answered -> agent performance quadrant

2. Data Sourcing

The data was provided by virtual internship process.

3. Data Cleaning

Data cleaning was done in Power Query. • To make the meaning of the data more obvious, the "Y" and "N" values for the Answered and Recovered Columns were changed to Yes and No, respectively.

• To extract the Weekday and Week Number from the Date, new columns were added to the data. These equations were employed:
WeekDay = FORMAT (Sheet1[Date],"dddd")
WeekDay Number = WEEKDAY (Sheet1[Date],2)
This will aid in my analysis of the number of incoming calls received each day of the week so that I can determine which days had the most and fewest calls received. The Week Number made it easy

for me to properly categorize my weeks' days such that Monday would be the first weekday and Sunday would be the last.

• An column (Hour) was created from time column to help us analyze time-based calls.

DAX Functions

These functions were applied to arrive at the data visualizations

- Answered Calls = CALCULATE([Total Incoming calls], Sheet1[Answered (Y/N)]="Yes")
- Unanswered Calls = CALCULATE([Total Incoming calls], Sheet1[Answered (Y/N)]="No")
- Average SpeedTime = average(Sheet1[Speed of answer in seconds])
- Average Time = AVERAGE(Sheet1[AvgTalkDuration])
- ATD (Average Talk Duration) = format(AVERAGE(Sheet1[AvgTalkDuration]),"HH:MM:SS")
- Averge CSAT Score = AVERAGE(Sheet1[Satisfaction rating])
- Total Incoming calls = DISTINCTCOUNT(Sheet1[Call Id])
- Unresolved = CALCULATE([Total Incoming calls], Sheet1[Resolved]="No")
- Resolved = CALCULATE([Total Incoming calls], Sheet1[Resolved]="Yes")

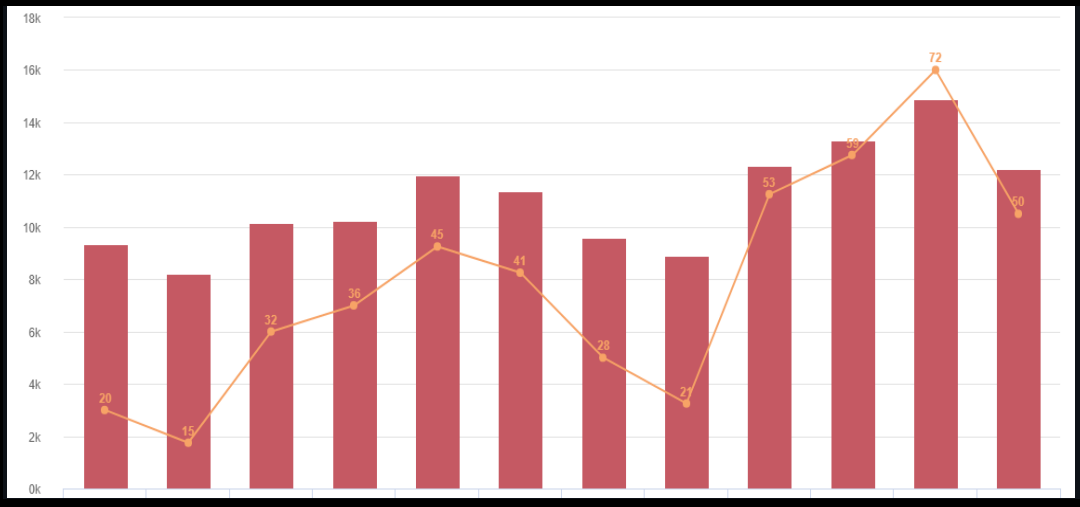
Assumption: An agent work for 6 days a week; On an average total unplanned leaves per agent is 4 days a month; An agent total working hrs is 9 Hrs out of which 1.5 Hrs goes into lunch and snacks in the office. On average an agent occupied for 60% of his total actual working Hrs (i.e 60% of 7.5 Hrs) on call with customers/ users. Total days in a month is 30 days.

a. The Average call time duration for all incoming calls received by agents

Time Bucket : Average Duration

1. 10_11: 0.001127593
2. 11_12: 0.001351664
3. 12_13: 0.001675058
4. 13_14: 0.001730798
5. 14_15: 0.001701034
6. 15_16: 0.001966398
7. 16_17: 0.002099992
8. 17_18: 0.002080145
9. 18_19: 0.002017647
10. 19_20: 0.001673409
11. 20_21: 0.001226263
12. 9_10: 0.001064934

b. The total volume/ number of calls coming in via charts/ graphs



c. Man Power Plan required

The current abandon rate is 30%
To reduce the abandon rate to 10%

Calculation:
Demand of P per day(n)=5000
Working time per employee (w)=420 minutes
No of shifts per day(s)= 2

Based on Time Buckets

9_10

- Man power required per shift = ((5000*0.001064934)/420)/2

  =0.0057

- Man power required = 15

10_11

- Man power required per shift = ((5000*0.001127593)/420)/2

  =0.0067

- Man power required = 16

11_12

a. Man power required per shift =((5000*0.00135166)/420)/2

=0.0073

- Man power required =1 7

12_13

- Man power required per shift = ((5000*0.001675058)/420)/2

  =0.0087

- Man power required = 18

13_14

- Man power required per shift = ((5000*0.001730798)/420)/2

  =0.0127

- Man power required = 12

14_15

- Man power required per shift = ((5000*0.001701034)/420)/2

=0.0137

- Man power required = 13

15_16

- Man power required per shift = ((5000*0.001966398)/420)/2

=0.0172

- Man power required = 17

16_17

- Man power required per shift = ((5000*0.002099992)/420)/2

=0.0157

- Man power required = 15

17_18

- Man power required per shift = ((5000*0.002080145)/420)/2

=0.0146

- Man power required = 14

18_19

- Man power required per shift = ((5000*0.002017647)/420)/2

=0.0153

- Man power required = 15

19_20

- Man power required per shift = ((5000*0.001673409)/420)/2

  =0.0087

- Man power required = 18

20_21

- Man power required per shift = ((5000*0.001226263)/420)/2

  =0.0063

- Man power required = 16

d. Manpower plan required during each time bucket in a day.

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

9-10am

- Man power required per shift = ((5000*0.001064934)/420)/2

  =0.0057

- Man power required = 1

10-11am

- Man power required per shift = ((5000*0.001127593)/420)/2

  =0.0067

- Man power required = 2

11_12am

b. Man power required per shift =((5000*0.00135166)/420)/2

=0.0073

- Man power required =1

12-1am

- Man power required per shift = ((5000*0.001675058)/420)/2

  =0.0087

- Man power required = 1

1-2am

- Man power required per shift = ((5000*0.001730798)/420)/2

  =0.0127

- Man power required = 2

2-3am

- Man power required per shift = ((5000*0.001701034)/420)/2

  =0.0137

- Man power required = 3

3-4am

- Man power required per shift = ((5000*0.001966398)/420)/2

  =0.0172

- Man power required = 1

4-5am

- Man power required per shift = ((5000*0.002099992)/420)/2

  =0.0157

- Man power required = 5

5-6am

- Man power required per shift = ((5000*0.002080145)/420)/2

  =0.0146

- Man power required = 4

6-7am

- Man power required per shift = ((5000*0.002017647)/420)/2

  =0.0153

- Man power required = 5

7-8am

- Man power required per shift = ((5000*0.001673409)/420)/2

  =0.0087

- Man power required = 8

8-9am

- Man power required per shift = ((5000*0.001226263)/420)/2

  =0.0063

- Man power required = 6

Recommendation:

1. The agents and entire staff need to come to an understanding of what makes good customer experience
2. Gain an understaning of system components, how and whom to contact so that they can be resolved
3. Maintain the average reponse time to calls at 60-90seconds.
4. Create systems that generate particualar customer experience.