ABC CALL VOLUME TREND ANALYSIS

FINAL PROJECT-4

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Agenda

1. Project Description
2. Tech-Stack used
3. Analysis
4. Conclusion

Project Description

- The project involves analyzing a dataset of a Customer Experience (CX) Inbound calling team for 23 days
- The dataset includes information on agents, queue time, call time, call duration, and call status. CX teams analyze customer feedback and data to improve the customer experience and have various roles and responsibilities
- AI tools like Interactive Voice Response (IVR), Robotic Process Automation (RPA), Predictive Analytics, and Intelligent Routing can be used to improve CX
- Inbound customer support involves handling incoming calls from existing or prospective customers to provide excellent customer service
- Analytical skills are important in targeting the right audience from different types of media platforms to convert them to customers at a low cost
- The project team will implement the proposed manpower plans and continuously monitor the call data to ensure that the abandon rate is reduced during peak hours, and incoming calls during night hours are answered promptly

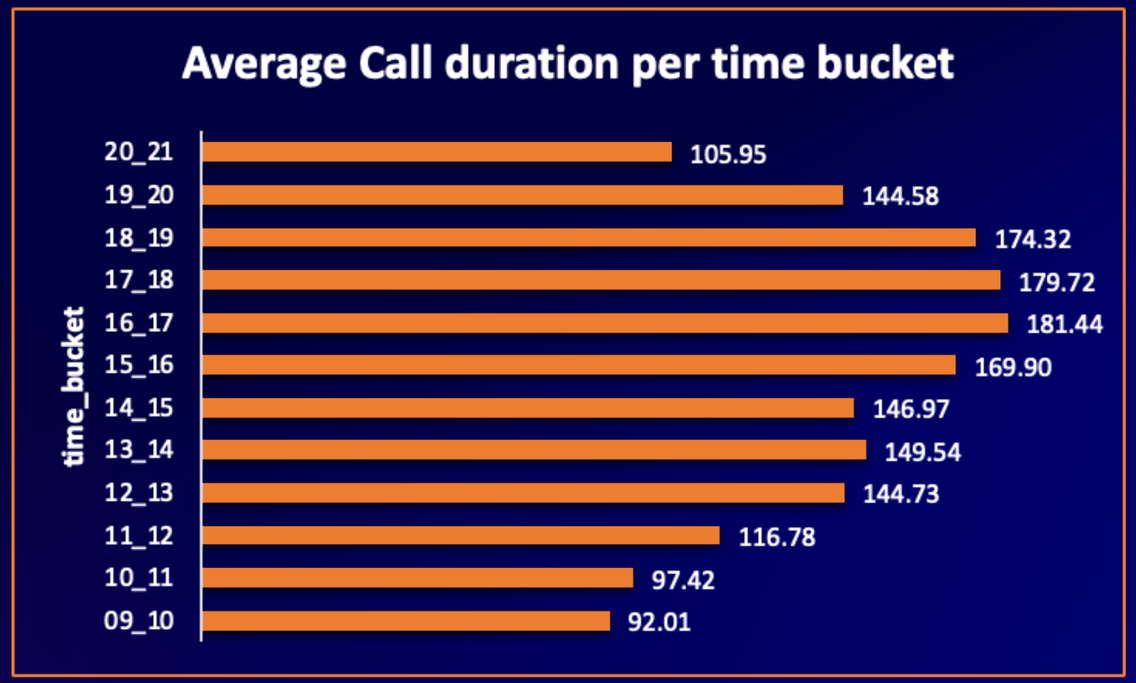
Tech-Stack Used

- To clean , analyze & visualize data

- To create report of the findings

A. Average call time duration for all incoming calls received by agents (in each Time_Bucket)

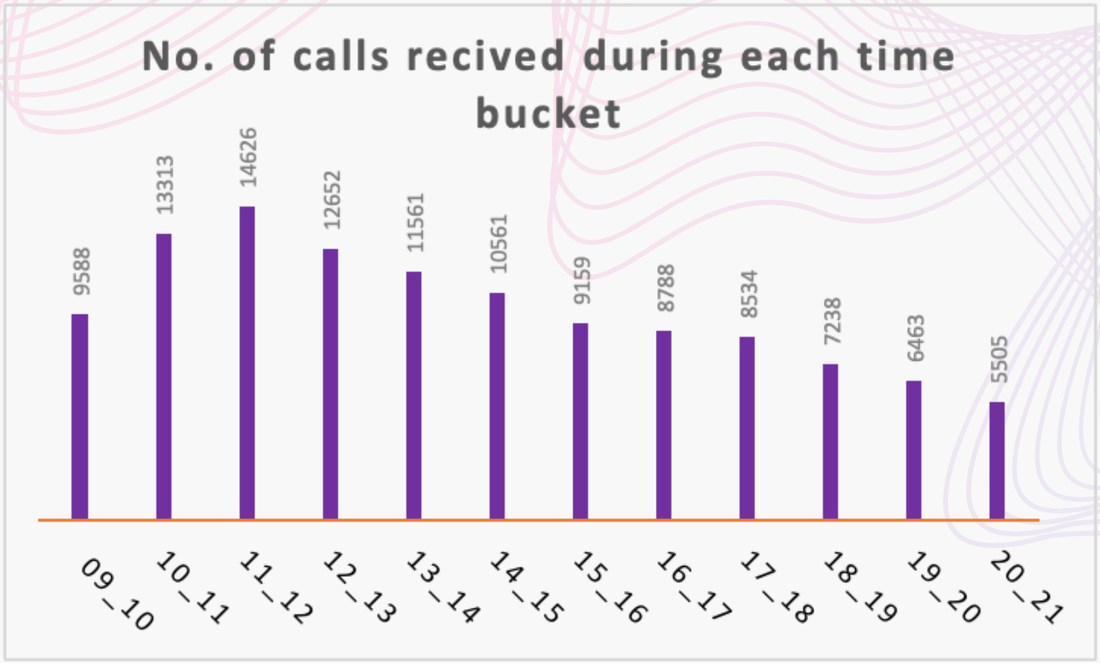
Time Bucket	Average of Call_Seconds
09_10	92.01
10_11	97.42
11_12	116.78
12_13	144.73
13_14	149.54
14_15	146.97
15_16	169.90
16_17	181.44
17_18	179.72
18_19	174.32
19_20	144.58
20_21	105.95



- It can be observed that the longest average call durations occurred between 4 PM to 5 PM.
- This suggests that there may be a need for additional staffing during these hours to improve customer experience and reduce wait times

B. Total number of calls incoming

Time Bucket	No. of Customer_Phone_No
09_10	9588
10_11	13313
11_12	14626
12_13	12652
13_14	11561
14_15	10561
15_16	9159
16_17	8788
17_18	8534
18_19	7238
19_20	6463
20_21	5505



- The highest number of calls were received during the time period of 11 am to 12 pm
- The chart provides a clear overview of the call volume pattern throughout the day, which can be helpful in identifying peak hours and optimizing the workforce accordingly.

C. Manpower plan required during each time bucket

Assumptions

- Total working hours: 9 hrs
- Lunch & snacks break: 1.5 hrs
- 60% of actual working hours (60% of 7.5%): 4.5 hrs
- average seconds on answered calls: 196.96 seconds

Call status	Count of Call_Status	Count of Call_Status2
abandon	34403	29.16%
answered	82452	69.88%
transfer	1133	0.96%

C. Manpower plan required during each time bucket

Time bucket	Total calls in each time bucket	Average calls per time bucket (for 23 days)	Average calls per time bucket at 90% rate	Number of man hrs required	Number of agents required per time bucket
09_10	9588	417	375	20.53	34
10_11	13313	579	521	28.50	48
11_12	14626	636	572	31.31	52
12_13	12652	550	495	27.09	45
13_14	11561	503	452	24.75	41
14_15	10561	459	413	22.61	38
15_16	9159	398	358	19.61	33
16_17	8788	382	344	18.81	31
17_18	8534	371	334	18.27	30
18_19	7238	315	283	15.50	26
19_20	6463	281	253	13.84	23
20_21	5505	239	215	11.79	20

- Total calls calculated using each time bucket using the no. of the customer phone number (abandoned, transferred & answered)
- The average calls by diving the total calls by 23 days
- For calculating the call rate at 90%: multiply the average calls by 90%
- To calculate no. of man hrs the 90% average calls is multiplied by the average calls in hours
- To calculate number of agents required at a 90% rate the mans hours in each time bucket is divided by 0.6 (ie. 60%)

B. Manpower plan required during the night each time bucket to reduce abandon rates

time bucket	distribution of 30 incoming calls at night	average calls per time bucket	calls at 10% abandon rate	number of hrs required	agents required
09AM - 10AM		416.87	375.18	20.53	34
10AM - 11AM		578.83	520.94	28.50	48
11AM - 12AM		635.91	572.32	31.31	52
12AM - 1PM		550.09	495.08	27.09	45
1PM - 2PM		502.65	452.39	24.75	41
2PM - 3PM		459.17	413.26	22.61	38
3PM - 4PM		398.22	358.40	19.61	33
4PM - 5PM		382.09	343.88	18.81	31
5PM - 6PM		371.04	333.94	18.27	30
6PM - 7PM		314.70	283.23	15.50	26
7PM - 8PM		281.00	252.90	13.84	23
8PM - 9PM		239.35	215.41	11.79	20
9PM-10PM	3	153.90	138.51	7.6	13
10PM-11PM	3	153.90	138.51	7.6	13
11PM-12AM	2	102.60	92.34	5.1	8
12AM-1AM	2	102.60	92.34	5.1	8
1AM-2AM	1	51.30	46.17	2.5	4
2AM-3AM	1	51.30	46.17	2.5	4
3AM-4AM	1	51.30	46.17	2.5	4
4AM-5AM	1	51.30	46.17	2.5	4
5AM-6AM	3	153.90	138.51	7.6	13
6AM-7AM	4	205.20	184.68	10.1	17
7AM-8AM	4	205.20	184.68	10.1	17
8AM-9AM	5	256.50	230.85	12.6	21

distribution of 30 calls from 9 PM to 9 AM

Time bucket	9PM-10PM	10PM-11PM	11PM-12AM	12AM-1AM	1AM-2AM	2AM-3AM	3AM-4AM	4AM-5AM	5AM-6AM	6AM-7AM	7AM-8AM	8AM-9AM
distribution of 30 incoming calls at night	3	3	2	2	1	1	1	1	3	4	4	5

Assumption	For every 100 calls between 9AM to 9 PM there are 30 calls between 9PM to 9 AM (30% calls during night)
Abandon rate	10%
Calls during day	117988
Average calls during day	5129.91
Average calls during night (30% of calls)	1538.97

- The average number of calls at night is calculated using the assumption that at night 30 calls are received for every 100 calls at night
- Using the 30 calls distribution table average calls are calculated from 9 Pm to 9 AM
- Using the approach used previously no. of agents required for time buckets between 9 Pm to 9 AM is calculated

Summary

- The total volume of calls followed a distinct pattern, with the highest volume of calls during the early afternoon, and a gradual decline in call volume throughout the remainder of the day
- The data also highlighted the need for additional staffing during the busiest time buckets to minimize customer wait times and improve the overall customer experience
- With the help of calculations to increase manpower to reduce abandon rates of calls from 30 % to 10 % it is now possible to understand the additional staffing requirements
- Alternatively, an IVR system can be used to provide callers with options to self-serve for simple queries, which can reduce the number of calls that need to be routed to agents, and hence, decrease the wait time
- The need of reducing the poor customer experience during the night (9Pm to 9 AM) is very much essential though the call volumes are minimal. This can be solved by calculating the staffing requirement during this timeline

Thank You

Link to the analysis file: