ABC Call Volume Trend Analysis

Final Project – 4

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Project Description

An inbound calling team's Customer Experience (CX) analytics is examined in this study. The dataset includes agent ID, queue time, call length, and status. Analyzing customer feedback, administering programs, internal messaging, and mapping customer journeys require a CX team. AI-powered IVR, RPA, Predictive Analytics, and Intelligent Routing improve customer experience. The initiative targets inbound customer assistance to attract, engage, and delight customers.

Insights

The call center's data shows an average call duration of 3 minutes, with 12_13 being the majority of answered calls. To improve customer service and reduce call failure, the data suggests hiring more agents during busy times. Proper staffing is crucial for maintaining a consistent customer experience, and future growth may require scaling the workforce.

Tech-Stack

Microsoft Excel's COUNT, Pivot Charts, and other advanced statistical functions are used for this analysis. I can analyze this data to find actionable patterns and trends, helping the company make better hiring decisions.

Excel file

TRAINITY_A8.xlsx

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A. Average Call Duration:

STATMENT:

The average duration of all inbound calls received by agents. Calculate this for each time bucket.

APPROACH:

To calculate the average call duration considering the bucket time, I have used Pivot Table for the same.

Time_Bucket	Duration(hh:mm:ss)	Call_Seconds (s)	Call_Status	Wrapped _By	Ringing	IVR _Duration
9_10	00:01:36	96	answered	Agent	YES	0.000185185
9_10	00:02:20	140	answered	Agent	YES	0.000300926
9_10	00:01:31	91	answered	Agent	YES	0.000289352
9_10	00:02:45	165	answered	Agent	YES	0.000266204
9_10	00:01:05	65	answered	Agent	YES	0.000231481
9_10	00:01:48	108	answered	Agent	YES	0.000173611
9_10	00:03:06	186	answered	Agent	YES	0.000185185
9_10	00:04:10	250	answered	Agent	YES	0.000219907
9_10	00:03:28	208	answered	Agent	YES	0.000555556
9_10	00:03:23	203	answered	Agent	YES	0.000289352
9_10	00:04:13	253	answered	Agent	YES	0.000231481
9_10	00:00:44	44	answered	Agent	YES	0.000185185
9_10	00:02:44	164	answered	Agent	YES	0.000474537
9_10	00:03:25	205	answered	Agent	YES	0.000532407
9_10	00:02:06	126	answered	Agent	YES	0.000486111
9_10	00:04:12	252	answered	Agent	YES	0.000196759
9_10	00:01:28	88	answered	Agent	YES	0.000243056
9_10	00:00:46	46	answered	Agent	YES	0.000451389
9_10	00:00:41	41	answered	Agent	YES	0.000219907

Time_Bucket	Average of Duration(hh:mm:ss)
10_11	00:03:30
11_12	00:03:24
12_13	00:03:13
13_14	00:03:15
14_15	00:03:15
15_16	00:03:19
16_17	00:03:19
17_18	00:03:21
18_19	00:03:24
19_20	00:03:25
20_21	00:03:23
9_10	00:03:19
Grand Total	**00:03:20**

FIG 1 Average Call Duration

INTERPRETATION:

- From the above images we can see that, the average call duration was around 3 mins in all the time bucket.

B. Call Volume Analysis:

STATMENT:

Show the number of calls vs time in a graph or chart. Time should be bucketed (1-2, 2-3, etc.).

APPROACH:

To analyse the call volume, I have used Pivot Table for the same. Following are the steps that I have taken:

- I selected the columns which I needed to analyse the same.
- And in the values tab, I added count of wrapped_by column that showed calls handled by the agent.
- From the Fig2 we can clearly see the output of the steps.

Time	Time_Bucket	Duration(hh:mm:ss)	Call_Seconds (s)	Call_Status	Wrapped _By	Ringing	IVR _Duration
9	9_10	00:01:36	96	answered	Agent	YES	00:00:16
9	9_10	00:02:20	140	answered	Agent	YES	00:00:26
9	9_10	00:01:31	91	answered	Agent	YES	00:00:25
9	9_10	00:02:45	165	answered	Agent	YES	00:00:23
9	9_10	00:01:05	65	answered	Agent	YES	00:00:20
9	9_10	00:01:48	108	answered	Agent	YES	00:00:15
9	9_10	00:03:06	186	answered	Agent	YES	00:00:16
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9	9_10	00:03:28	208	answered	Agent	YES	00:00:48
9	9_10	00:03:23	203	answered	Agent	YES	00:00:25
9	9_10	00:04:13	253	answered	Agent	YES	00:00:20
9	9_10	00:00:44	44	answered	Agent	YES	00:00:16
9	9_10	00:02:44	164	answered	Agent	YES	00:00:41
9	9_10	00:03:25	205	answered	Agent	YES	00:00:46
9	9_10	00:02:06	126	answered	Agent	YES	00:00:42

Time_Bucket	Count of Wrapped _By
10_11	3619
11_12	5189
12_13	7081
13_14	6856
14_15	5943
15_16	6341
16_17	6487
17_18	6281
18_19	4853
19_20	3110
20_21	2008
9_10	2628
Grand Total	**60396**

FIG 2 Call Volume Analysis

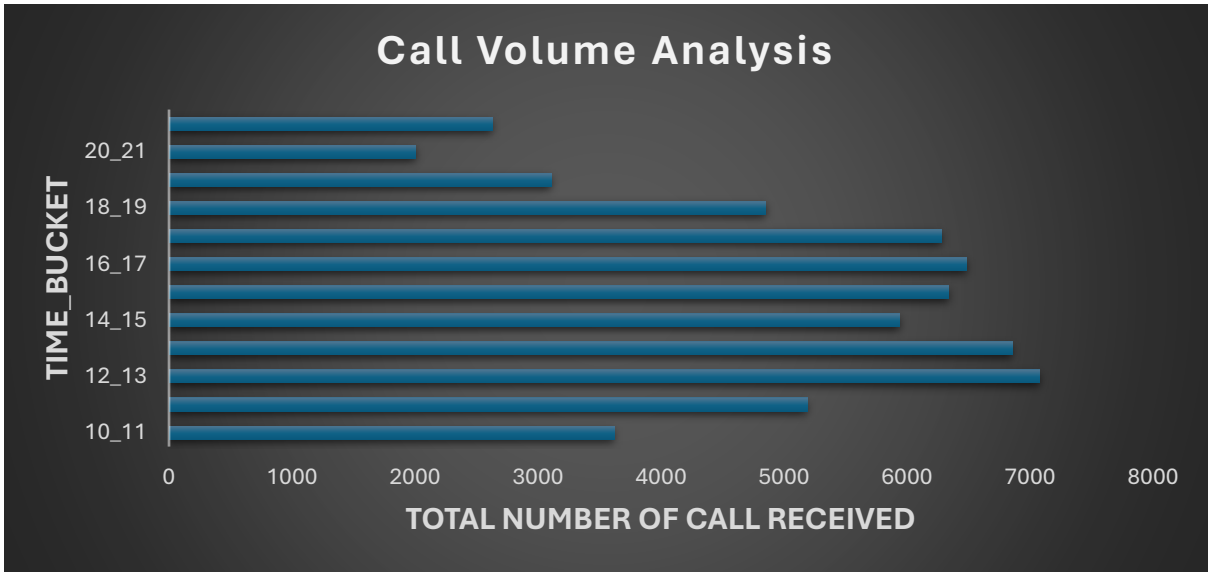

FIG 3 Visual Representation of Call Volume Analysis

INTERPRETATION:

- From the above images we can see that, the time bucket 12_13 has majority of the answered calls by the agents.

C. Manpower Planning:

STATMENT:

30% of calls are abandoned. To decrease abandonment to 10%, propose staff allocation for each time bucket (9 am–9 pm). Thus, determine the minimum number of agents per time bucket to handle 90 out of 100 calls. The least number of agents per time bucket to decrease abandonment to 10% is.

APPROACH:

- The data is broken up into time buckets that show different times of the day, like 10_11, 11_12, etc.

- The number of call reports in each time bucket shows how many calls were made during that hour.

I	J	K	L
TIME_BUCKET	Count of Call_Status	Total No. of Agents [As per Current Rate]	Total No. of Agents [As per New Rate]
10_11	6911	4,838	6,220
11_12	6028	4,220	5,425
12_13	3073	2,151	2,766
13_14	2617	1,832	2,355
14_15	2475	1,733	2,228
15_16	1214	850	1,093
16_17	747	523	672
17_18	783	548	705
18_19	933	653	840
19_20	1848	1,294	1,663
20_21	2625	1,838	2,363
9_10	5149	3,604	4,634
Grand Total	**34403**	**24,082**	**30,963**
CURRENT AGENT RATE	70%		
NEW AGENT RATE	90%		

FIG 4 Evidence.

INTERPRETATION:

- Based on the data, the call center might need to add more workers during busy times to meet customer needs and provide better service.
- Using the new rate might mean that more agents are needed, which means that more people might need to be hired to improve the customer experience and cut down on call failure.

D. Night Shift Manpower Planning:

STATMENT:

Customer calls to ABC Insurance Company at night go unanswered due to a lack of representatives. The consumer experience suffers. Assume each customer makes 100 calls between 9 am and 9 pm and 30 calls between 9 pm and 9am. Propose a daily manpower strategy for each time bucket with a 10% abandon rate.

APPROACH:

- "Minimum Agents Required" calculates the minimal number of agents needed to achieve service level standards.
- Call volumes, necessary answered calls, and minimum agents are directly related.

Time_Bucket	Count of Wrapped _By	Day/Night shifts	Time_Bucket	Count of Call_Status	Required Answered Calls	Minimum Agents Required
10_11	3619	Day	10_11	13,313	11,982	17,117
11_12	5189	Day	11_12	14,626	13,163	18,805
12_13	7081	Day	12_13	12,652	11,387	16,267
13_14	6856	Day	13_14	11,561	10,405	14,864
14_15	5943	Day	14_15	10,561	9,505	13,578
15_16	6341	Day	15_16	9,159	8,243	11,776
16_17	6487	Day	16_17	8,788	7,909	11,299
17_18	6281	Day	17_18	8,534	7,681	10,972
18_19	4853	Night	18_19	7,238	6,514	9,306
19_20	3110	Night	19_20	6,463	5,817	8,310
20_21	2008	Night	20_21	5,505	4,955	7,078
9_10	2628	Day	9_10	9,588	8,629	12,327
Grand Total	**60396**		**Grand Total**	**1,17,988**	**1,06,189**	**1,51,699**

FIG 5 Minimum numbers of workers required

INTERPRETATION:

- The data emphasizes matching agent resources to high call times, notably mornings.
- Staffing numbers may be adjusted during high-demand periods to improve customer service and satisfy service level standards.
- While night shifts have reduced call counts and service level requirements, proper staffing is crucial for maintaining a consistent customer experience.
- For future growth, the call center may need to scale its workforce to meet demand and maintain service excellence.