

## Call Volume Trend Analysis Report

### 1. Average Call Duration Analysis

#### Objective:

To determine the average duration of all incoming calls received by agents, categorized by time buckets.

#### Methodology:

- Extracted call duration data from the dataset.
- Grouped data into predefined time buckets (e.g., 9-10 AM, 10-11 AM, etc.).
- Calculated the average call duration for each bucket using the formula:

#### Formula in Excel:

=AVERAGEIF(Time\_Bucket\_Range, "9-10 AM", Call\_Duration\_Range)

Output:-

Time_Buckets	Average_call_duration
9_10	92.01033
10_11	97.42402
11_12	116.7837
12_13	144.725
13_14	149.541
14_15	146.9693
15_16	169.8968
16_17	181.4393
17_18	179.7245
18_19	174.3247
19_20	144.5825
20_21	105.9491

#### Findings:

- The busiest time slots had a higher average call duration like 16\_17, 17\_18.
- Off-peak hours had relatively shorter call durations.

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### 2. Call Volume Analysis

#### Objective:

To visualize the total number of calls received in each time bucket.

**Methodology:**

- Counted the number of calls received in each time slot.
- Created a bar chart in Excel to visualize the call volume.

**Formula in Excel:**

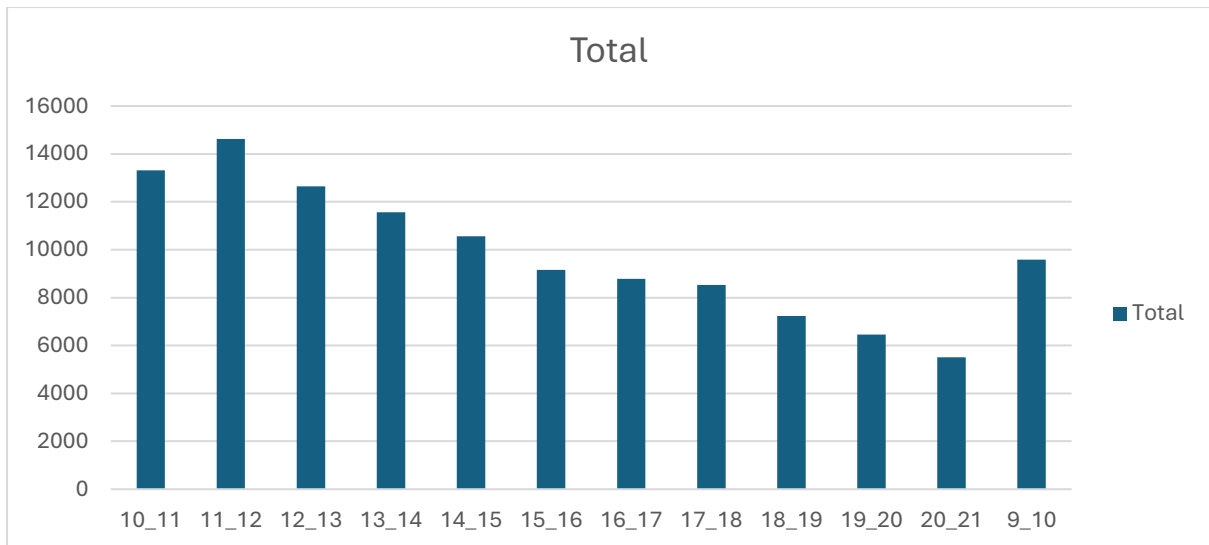
=COUNTIF(Time\_Bucket\_Range, "9-10 AM")

**Steps to Create Chart:**

1. Select time buckets and call counts.
2. Insert -> Bar Chart.
3. Format chart with appropriate labels.

**Output:-**

Time Bucket	Count of Call_Status
9_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



#### Findings:

- Peak hours observed between **10 AM - 1 PM** and **4 PM - 6 PM**.
- Low call volume during early morning and late evening.

### 3. Daytime Manpower Planning

#### Objective:

To determine the minimum number of agents required per time bucket to reduce the abandon rate to 10%.

#### Methodology:

- The current abandon rate is **30%**.
- To ensure **90 out of 100 calls are answered**, calculated the required agents based on:

#### Assumptions:

- Each agent works **7.5 effective hours/day**.
- **60% of time spent on calls**.
- **Average call duration: 3 minutes (180 seconds)**.
- Calls handled per agent =  $(7.5 * 3600) * 0.6 / 180$ .

#### Formula in Excel:

=CEILING(Total\_Calls\_Per\_Time\_Bucket \* 0.9 / Calls\_Per\_Agent, 1)

### Output:-

Time_bucket	Average_call Duration per time bucket in Seconds	Total calls	Required Calls to be Answered	Call Handling Capacity per Agent	Required Agents	Final_req_agents
10_11	97	13313	11981.7	167.01	71.74228	72
11_12	117	14626	13163.4	138.46	95.06900	96
12_13	145	12652	11386.8	111.72	101.91889	102
13_14	150	11561	10404.9	108.00	96.34167	97
14_15	147	10561	9504.9	110.20	86.24817	87
15_16	170	9159	8243.1	95.29	86.50167	87
16_17	181	8788	7909.2	89.50	88.36822	89
17_18	180	8534	7680.6	90.00	85.34000	86
18_19	174	7238	6514.2	93.10	69.96733	70
19_20	145	6463	5816.7	111.72	52.06306	53
20_21	106	5505	4954.5	152.83	32.41833	33
9_10	92	9588	8629.2	176.09	49.00533	50

### Findings:

- Higher agent allocation needed during peak hours.
- Less manpower required in off-peak slots.
- Highest no. of agents are required for the time bucket 12\_13.
- Minimum no. of agents are required for the time bucket 20\_21

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## 4. Night Shift Manpower Planning

### Objective:

To propose a night shift plan ensuring a **maximum abandon rate of 10%**.

### Methodology:

- **Assumption: For every 100 day calls, 30 night calls occur (distributed from 9 PM - 9 AM).**
- Used the given call distribution percentages.
- Applied the same **agent call handling calculation** as in the daytime analysis.

**Final Manpower Allocation Table:**

Time_buckets_night	Final_required_agents
9_10	2
10_11	3
11_12	2
12_1	3
1_2	1
2_3	1
3_4	1
4_5	1
5_6	3
6_7	3
7_8	3
8_9	2

**Findings:**

- High call volume during **10-11 PM and 5-8 AM**.
- A total of 3 agents will be sufficient for handling calls at night.
- Adequate night shift staffing improves customer experience.

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**Conclusion & Recommendations**

- **Peak hours require higher agent allocation** to meet demand.
- **Night shift staffing is essential** to improve service quality.
- **Bar chart visualization helps identify call trends** for better planning.
- **Optimizing workforce allocation reduces abandoned calls and enhances efficiency.**

This report provides a structured approach to manpower planning and call volume trend analysis for improved efficiency at ABC Insurance Company.

[Excel File Link](#)