**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.

**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:-**



**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

**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 1**0-11 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.

**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](https://docs.google.com/spreadsheets/d/1YYHakVHik92pt71iMWNKQzdiyg4kboME/edit?usp=sharing&ouid=103367207335067834675&rtpof=true&sd=true)