

POWER BI PROJECT REPORT: CALL CENTER MANAGEMENT

1. PROBLEM STATEMENT

The call centre receives a high volume of customer interactions through multiple channels (calls, Chabot, etc.), and management lacks a clear understanding of performance trends, agent efficiency, customer sentiment, and SLA compliance. The objective of this project is to analyse call centre data to identify performance bottlenecks, understand customer behaviour, and improve service quality through actionable insights.

2. DATA PREPROCESSING STEPS

Data Import:

Loaded CSV data into Power BI from the call centre source.

Data Cleaning (Power Query):

- Removed unnecessary columns (if any).
- Replaced null values in Csat Score with 0 or marked as "Not Available".
- Converted Call Timestamp from text to Date format.
- Filtered data by valid call durations and response statuses.

Data Transformation:

- Created calculated columns (e.g., Year, Month from timestamp).
- Categorized sentiment and call reasons.
- Used slicers and filters for channel, state, and city segmentation.

Data Modelling:

- Relationships maintained within a single table.
- Measures created using DAX for KPIs and calculations.

3. POWER BI REPORT PAGES

PAGE 1: OVERALL SUMMARY

- Main KPI's
 - Total Calls by day
 - Total Calls by State
 - Total Calls by Reason
 - Total Calls by Channels and Centres
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PAGE 2: SENTIMENT

- Sentiment by CSAT score
 - Total Calls by Response Time
 - Total Calls by Sentiment and Timestamp
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PAGE 3: GRID VIEW OF DATA

- Overall Summary and Data in Grid View Format
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REPORT OVERVIEW

- A summary dashboard with KPIs and call distribution.
- A sentiment and feedback page showing customer emotions.
- Channel performance with comparison between chatbot and call-center.
- A time trends page to understand peak hours and monthly patterns."

4. DAX MEASURES USED

Measure	DAX Formula
Total Calls	Total Calls = COUNT(CallData[Id])
Average Call Duration	Avg Duration = AVERAGE(CallData[Call Duration In Minutes])
SLA Compliance %	SLA % = DIVIDE(CALCULATE(COUNT(CallData[Response Time]), CallData[Response Time] = "Within SLA"), COUNT(CallData[Response Time]))
Positive Sentiment %	Positive % = DIVIDE(CALCULATE(COUNT(CallData[Sentiment]), CallData[Sentiment] = "Very Positive"), COUNT(CallData[Sentiment]))
CSAT Avg Score	Avg CSAT = AVERAGE(CallData[Csat Score])
Measure Name	DAX Formula
Avg Price	AVERAGE(Hotels[Price])
Avg Rating	AVERAGE(Hotels[Rating])
Total Reviews	SUM(Hotels[Reviews])
Total Hotels	COUNTROWS(Hotels)
Total Price	SUMX(Hotels, Hotels[Price] + Hotels[Tax])
Hotels with Tax Missing	CALCULATE(COUNTROWS(Hotels), ISBLANK(Hotels[Tax]))
Distance KM	Calculated column from Distance to Landmark (converted to KM)

5. ASSUMPTIONS

- Csat Score values that are null are either customers who didn't give feedback or system errors; assumed 0 or ignored in averages.
- Response Time values labelled "Within SLA" and "Above SLA" are reliable for compliance measurement.
- Sentiment categories are consistent across data (no misspellings or mixed formats).
- One row = one customer interaction (i.e., no duplicate calls for the same issue).
- Call timestamp reflects the date of interaction; assumed accurate for time analysis.

6. KEY INSIGHTS

- Most calls came through call centres, but Chat bots were more efficient for quick resolutions.
- Sentiment was mostly positive, but billing and outage-related calls had more negative feedback.
- Certain cities consistently had higher call volumes, and some had SLA issues.
- CSAT scores were generally good where sentiments were positive.

7. CONCLUSION

This dashboard provides a complete view of call center operations. It helps identify service gaps, performance strengths, and customer pain points. With this, management can take action to improve customer experience and operational efficiency.