# **Final Report**

# **ClearConnect Communication Oct 2020**

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***Data Source****:* [*Here*](https://data.world/markbradbourne/rwfd-real-world-fake-data/workspace/file?filename=Call+Center.csv) *(not real data – created for learning purposes).*

1. **Project Overview**

This project aims to analyze the performance of multiple call centers over a one-month period to identify operational patterns, service quality insights, and potential improvement areas.

The analysis includes customer satisfaction (CSAT), sentiment, and service level adherence (SLA) across various channels and regions.

1. **Data Summary**

**Dataset Used**: Cleaned and enhanced call center dataset.

**Period covered**: 1/10/2020 – 31/10/2020

**Additional Columns Added**:

Week – to group data into weeks.

Day – to analyze daily performance trends.

CSAT - which indicates the Satisfaction rate of the customer ( 0-4 “*unsatisfied “*  - 5-7 “*neutral”* – 8-10 “*Satisfied “.*

**Total Records:** It includes a total of 32,941 rows, representing all call logs recorded in October 2020.

1. **Exploratory Data Analysis (EDA)**

All pivot tables and summary statistics were created to understand:

* Total call volume by branch, week, and channel.
* CSAT distribution and sentiment breakdown.
* SLA compliance and its relationship with satisfaction metrics.
* Peak days and hours for call activity.

Key tools used: **Pivot Tables, Calculated Fields, and Slicers** for dynamic filtering and comparison.

1. **Dashboard Summaries:**

#### 📊 Dashboard – Overview

* Displays the general performance of all call centers.
* Key metrics:
  + **Total Calls**
  + **SLA Compliance %**
  + **Average Handling Time**
  + **Customer Satisfaction (CSAT)**
  + **Sentiment Score**
* Slicers were added for **Call Center Branch**, **Week**, and **Channel** to allow interactive filtering.

**Insight Example:**

Weekly trends show stable call volumes across the first four weeks, while Week 5 saw a drop due to having only three active days.

#### 📈 Dashboard – Performance

* Compares performance between branches.
* Includes **Daily and Weekly Trend Analysis**.
* Helps identify underperforming call centers or abnormal fluctuations.

**Insight Example:**

Thursday and Friday in Week 5 recorded ~2,000 additional calls, explaining the temporary rise in total volume before the weekend.

#### 💬 CSAT Improvement Sheet

* Focused on analyzing **Customer Satisfaction** and **Sentiment by Channel and State**.
* States were divided into two groups:
  + Less than 500 surveys.
  + More than 500 surveys.
* This ensures unbiased comparison.

**Insight Example:**

Regions with lower sentiment scores tended to have lower SLA compliance, indicating a possible link between service response time and customer satisfaction.

1. **Key Insights & Recommendations**

**1. Average Handling Time (AHT)**

* The **overall AHT** is approximately **25 minutes**, with only slight variation across branches.
* The **Payment Queries** category recorded the **highest AHT (25:12 mins)** — this may indicate additional time spent on verification, payment confirmation, or system delays.
* **Recommendation:**
  + Review the **call workflow for payment-related calls** to identify process inefficiencies.
  + Consider simplifying verification steps or providing agents with better tools for quick transaction checks.

### **2. Workload Distribution**

* **Los Angeles (41.69%)** handled more than **five times** the volume of **Denver (8.43%)**, showing an uneven workload distribution.
* **Recommendation:**
  + Balance resources and staffing levels across centers to maintain consistent service quality and reduce burnout in high-volume centers.

### **3.Average Calls per Day**

* The **average daily call volume is 1,098**.
* **Recommendation:**
  + Use this figure to determine the optimal **agent-to-call ratio** based on average handling time and desired SLA levels.

### **4. Service Level Agreement (SLA)**

* The **overall SLA is 75.26%**, slightly below the **target of 80%**.
* **Los Angeles** recorded the **highest SLA**, closely followed by **Baltimore (74.86%)**.
* **Recommendation:**
  + Review **agent availability, call routing efficiency, and break schedules**.
  + Collaborate with the **QA department** to identify unnecessary hold or wrap-up times that increase handling duration.
  + If current staffing is insufficient, consider **hiring additional agents** or redistributing workload.

### **5. Customer Sentiment**

* The **overall sentiment score is 48%**, indicating that **over half of customers expressed dissatisfaction**.
* **Recommendation:**
  + Conduct **targeted empathy and communication training** for agents.
  + Implement **real-time sentiment monitoring tools (AI or QA sampling)** to identify negative interactions early.

### **6. Customer Satisfaction (CSAT)**

* The **overall CSAT is 65%**, below the **target of 75%**.
* **Recommendation:**
  + Analyze customer comments to identify recurring issues.
  + Reinforce **soft skills training** and **empathy-based responses** to improve customer experience.
  + Encourage agents to confirm resolution and satisfaction before ending each call.

### **7. Call Volume by State**

* **California, Texas, and Florida** recorded the **highest call volumes**.
* **Recommendation:**
  + Focus on **technical support and infrastructure** improvements in these states.
  + Ensure adequate **technician availability** and **regional escalation protocols** to prevent repeated issues.

### **🔹 8. Daily and Weekly Trends**

* A **notable rise** in calls occurred on **Thursday and Friday (Week 5)**, adding roughly **2,000 extra calls**.
* **Saturday** had minimal activity (only one call).
* Weekly performance remained **stable across the first four weeks**, with a **drop in Week 5** (only three operational days).
* **Recommendation:**
  + Adjust scheduling to **increase staffing on Thursdays and Fridays**.
  + Use weekly trend monitoring to forecast future demand more accurately.

### **🔹 9. CSAT and Sentiment by Channel**

* The **Web channel** achieved the **highest CSAT (66%)**, followed by **Call Center (66%)** and **Email (65%)**, while **Chatbot** ranked lowest (64%).
* **Web and Chatbot** also led in **sentiment**, reflecting effective self-service tools.
* **Recommendation:**
  + Continue improving **web-based and chatbot support**, but add **human escalation options** to handle complex cases and improve satisfaction.

### **🔹10. CSAT by State Groups (Updated Insight)**

* **States with <500 surveys:**
  + *North Dakota* achieved the **highest CSAT (6.37)** with **76 surveys**.
  + *Rhode Island* had the **lowest (5.89)** with **35 surveys**.
* **States with >500 surveys:**
  + *Washington* recorded the **highest CSAT (5.76)** with **663 surveys**, while *Pennsylvania* had the **lowest (5.67)** with **1,017 surveys**.
* **Additional Finding:**
  + Further analysis shows that **around 70% of Pennsylvania’s calls were related to billing inquiries**, which typically have **longer handling times and higher customer frustration**, especially when refunds or payment issues are involved.
* **Updated Recommendation:**
  + Focus on **improving billing process transparency and agent training** in financial-related calls.
  + Introduce **clear payment confirmation steps, refund status tracking, and proactive communication**, which could significantly boost customer satisfaction in high-billing-volume states.

### **11. SLA vs. CSAT and Sentiment Correlation**

* No significant relationship was observed between SLA and customer satisfaction:
  + **CSAT below SLA:** 5.6
  + **CSAT within SLA:** 5.5
  + **Sentiment below SLA:** 48.24%
  + **Sentiment within SLA:** 48.08%
* **Conclusion:**
  + **Service speed alone does not guarantee satisfaction** — quality of communication and issue resolution matter more.
* **Recommendation:**
  + Focus on **quality of interaction** rather than only reducing AHT.