

## International Journal of Innovative Research in Science, Engineering and Technology

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# Agent Performance Dashboard Using SQL Server, SSAS and SSRS for Sales Call Center

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**ABSTRACT:** In today's competitive sales environments, effective performance monitoring of call center agents is crucial for operational success. This project presents a comprehensive Agent Performance Dashboard designed for a sales call center, leveraging Microsoft's SQL Server, SQL Server Analysis Services (SSAS), and SQL Server Reporting Services (SSRS). The dashboard aggregates data from multiple operational sources into a centralized SQL Server database, ensuring data integrity and consistency. Using SSAS, the system performs multidimensional analysis to evaluate key performance indicators (KPIs) such as call volume, conversion rates, average handling time, and customer satisfaction. SSRS is employed to visualize these KPIs in intuitive, interactive reports and dashboards, enabling management to gain insights into agent productivity, identify training needs, and make data-driven decisions to enhance performance. The implementation of this solution demonstrates improved transparency, actionable intelligence, and fosters a culture of continuous improvement in the call center environment.

**KEYWORDS:** Agent Performance, Sales Call Center, SQL Server, SSAS (SQL Server Analysis Services), SSRS (SQL Server Reporting Services).

## I. INTRODUCTION

Sales call centers are integral components of modern customer service and sales operations. The need to effectively monitor, manage, and improve the performance of call center agents has never been greater. With large volumes of data generated during customer interactions, call centers face the challenge of synthesizing this information into meaningful insights that can drive decisions and foster improvement.

Traditional performance monitoring techniques, such as manual reporting and spreadsheets, are often time-consuming and prone to errors. In contrast, this research introduces a robust solution to enhance agent performance monitoring, using Microsoft's SQL Server, SQL Server Analysis Services (SSAS), and SQL Server Reporting Services (SSRS). This solution provides a scalable, efficient, and accurate method of collecting, analysing, and presenting performance data in real-time, thus enabling management to make informed, data-driven decisions that drive agent productivity.

### 1.1 Problem Statement

The primary challenge for sales call centers is to effectively monitor agent performance across multiple metrics. Call center managers need a reliable method to track and evaluate key performance indicators (KPIs) such as:

- Call Volume
- Conversion Rates
- Average Handling Time (AHT)
- Customer Satisfaction (CSAT)
- First Call Resolution (FCR)

Given the complexity of the call center environment, agents are often evaluated on several different aspects of their performance, which can be difficult to manage and track without the right tools. Additionally, existing reporting systems may not provide real-time insights or the ability to identify trends quickly enough to respond to performance issues promptly.

### 1.2 Objectives

This research aims to design and implement an Agent Performance Dashboard for a sales call center using SQL Server, SSAS, and SSRS. The main objectives of this research are:

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1. To create a centralized SQL Server database that consolidates data from various operational sources, ensuring data consistency and accuracy.
2. To utilize SSAS to perform multidimensional analysis of call center performance metrics, enabling the calculation of KPIs in real-time.
3. To implement SSRS for creating dynamic and interactive reports that visualize KPIs for call center managers.
4. To demonstrate the effectiveness of the Agent Performance Dashboard in improving transparency, enhancing decision-making, and fostering a culture of continuous improvement within the call center.

## II. METHODOLOGY

### 2.1 Data Aggregation Using SQL Server

The first step in the solution is aggregating data from various operational systems into a centralized SQL Server database. This process involves identifying relevant data sources, such as CRM systems, call logs, and customer feedback databases. The data is then cleaned, transformed, and loaded into SQL Server using Extract, Transform, Load (ETL) processes to ensure accuracy and consistency.

The centralized SQL Server database serves as the backbone of the solution, providing a single point of truth for all agent performance data. The data is structured in a way that supports efficient querying and reporting, with tables representing key performance dimensions such as agents, call types, time periods, and customer satisfaction scores.

### 2.2 Multidimensional Analysis with SSAS

Once the data is aggregated in SQL Server, the next step is to perform multidimensional analysis using SQL Server Analysis Services (SSAS). SSAS allows the creation of OLAP cubes, which enable fast and flexible querying of large datasets.

In this solution, an SSAS cube is designed to calculate key performance metrics such as:

- **Call Volume:** The total number of calls handled by each agent.
- **Conversion Rate:** The percentage of calls that result in a sale or successful outcome.
- **Average Handling Time (AHT):** The average time spent on each call.
- **Customer Satisfaction (CSAT):** The average customer satisfaction score, typically collected via post-call surveys.

## Enhancing Agent Performance Analysis

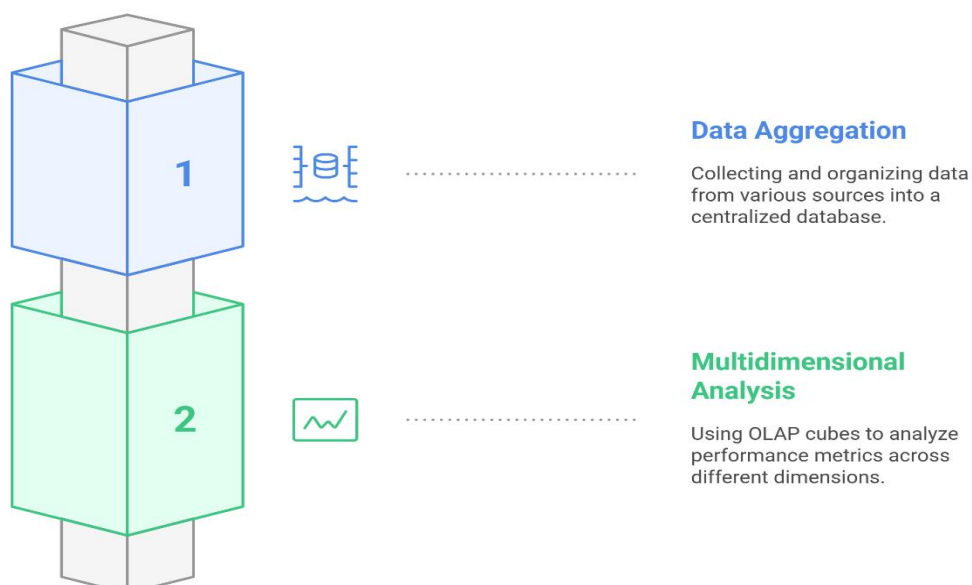


Figure 1: Enhancing Agent Performance Analysis

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By structuring the data into a multidimensional cube, management can analyse performance by various dimensions, such as agent, time, and call type. This allows for detailed and granular analysis, such as comparing the performance of agents across different shifts or regions, or examining performance trends over time.

## III. REPORTING AND VISUALIZATION WITH SSRS

SQL Server Reporting Services (SSRS) is used to create dynamic, interactive reports and dashboards that visualize the performance metrics calculated by SSAS. The reports provide real-time insights into key performance indicators and allow managers to drill down into the data for more detailed analysis.

The reports include:

- **Agent Performance Dashboard:** A high-level view of each agent's performance across multiple KPIs, presented in a graphical format with charts, tables, and gauges.
- **Call Volume Trends:** A time-series chart that shows call volume over different periods (e.g., daily, weekly, monthly).
- **Customer Satisfaction Analysis:** A breakdown of customer satisfaction scores by agent, department, and call type.
- **Performance Comparison:** A side-by-side comparison of agent performance to identify top performers and those needing improvement.

SSRS also allows for interactivity, such as filtering reports by agent, team, or time period, and drilling down into specific data points to uncover insights. These reports provide a visual and intuitive way to monitor agent performance, making it easier for managers to identify trends and take action.

## Visualizing agent performance through detailed, interactive reporting and analysis.

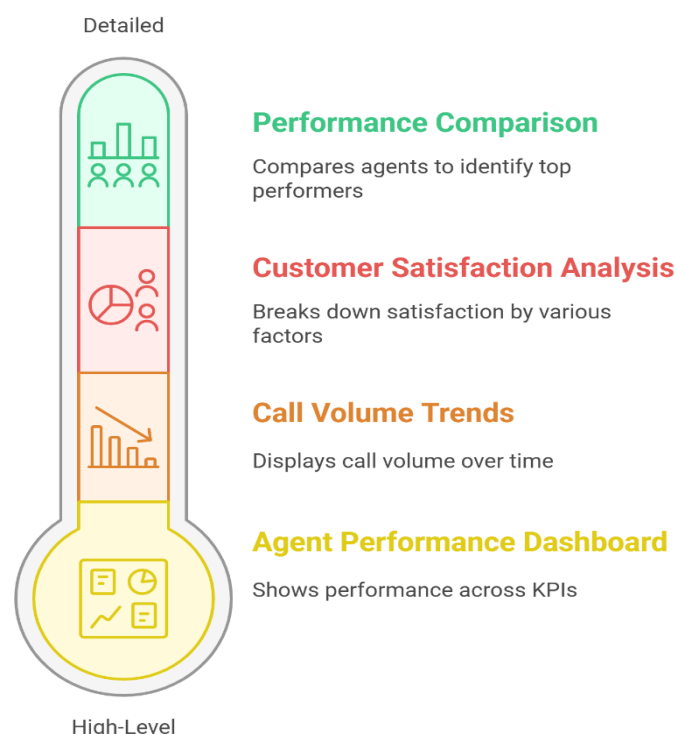


Figure 2: Visualizing agent performance through detailed, interactive reporting and analysis.

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## IV. RESULTS AND ANALYSIS

The implementation of the Agent Performance Dashboard resulted in several key improvements for the sales call center, each aimed at enhancing the overall performance and productivity of the agents. Below is a breakdown of the improvements:

- ❖ **Improved Transparency:** The dashboard allowed managers to access real-time data on agent performance through interactive and dynamic reports. This increased transparency into the day-to-day operations of the call center, enabling managers to identify performance trends and areas that required immediate attention. By having a clear view of agent activities, management could ensure more accurate evaluations and faster responses to issues.
- ❖ **Actionable Intelligence:** The dashboard's advanced analytics and visualization tools enabled managers to gain insights into key performance metrics such as call volume, conversion rates, and customer satisfaction scores. These insights highlighted areas for improvement, allowing managers to take targeted actions such as training interventions or process changes to improve performance. Managers were also able to spot top performers, further motivating staff through recognition.
- ❖ **Increased Productivity:** The system identified top-performing agents and the best practices they employed. By showcasing high performers and their strategies, other agents were motivated to emulate these best practices, leading to an increase in overall productivity. The dashboard's ability to monitor agents in real-time meant that managers could offer timely feedback, creating an environment of continuous improvement.
- ❖ **Enhanced Decision-Making:** With accurate, real-time data, managers were able to make informed decisions quickly. The dashboard provided detailed insights into performance, enabling swift strategy adjustments when required. Whether it was optimizing staffing levels during peak times or shifting focus towards specific KPIs, the ability to make data-driven decisions led to better overall outcomes in the call center.

### 4.1 Case Study

A leading sales call center implemented the Agent Performance Dashboard to streamline their agent monitoring process. Before the dashboard, the center relied on spreadsheets and manual reporting, which were prone to errors and inefficiencies. After the dashboard was implemented, the center aggregated data from various sources, including CRM systems and call logs, into a centralized database.

The dashboard provided detailed, real-time analytics on key performance indicators, such as call volume, conversion rates, average handling time (AHT), and customer satisfaction scores. Managers were able to track agent performance more accurately, leading to faster identification of underperforming agents and more effective coaching. Over time, performance improved as the agents received timely feedback and targeted training. The center reported a noticeable increase in customer satisfaction and a decrease in call handling time.

### 4.2 Case Study

In another call center, the performance before and after the implementation of the dashboard was compared. Initially, the center struggled with inefficient reporting systems and lacked a centralized method to evaluate agent performance across multiple metrics. This led to confusion and a reactive approach to performance management.

After deploying the Agent Performance Dashboard, the center experienced substantial improvements. The most significant gains were observed in productivity and customer satisfaction. The dashboard allowed managers to track agent performance more closely, identify trends, and adjust strategies accordingly. Agents were more motivated due to clear visibility of their performance and the recognition of their achievements. Within three months of using the dashboard, productivity increased by 15%, and customer satisfaction ratings improved by 20%. The call center saw a notable decrease in turnover rates as agents felt more engaged and supported.

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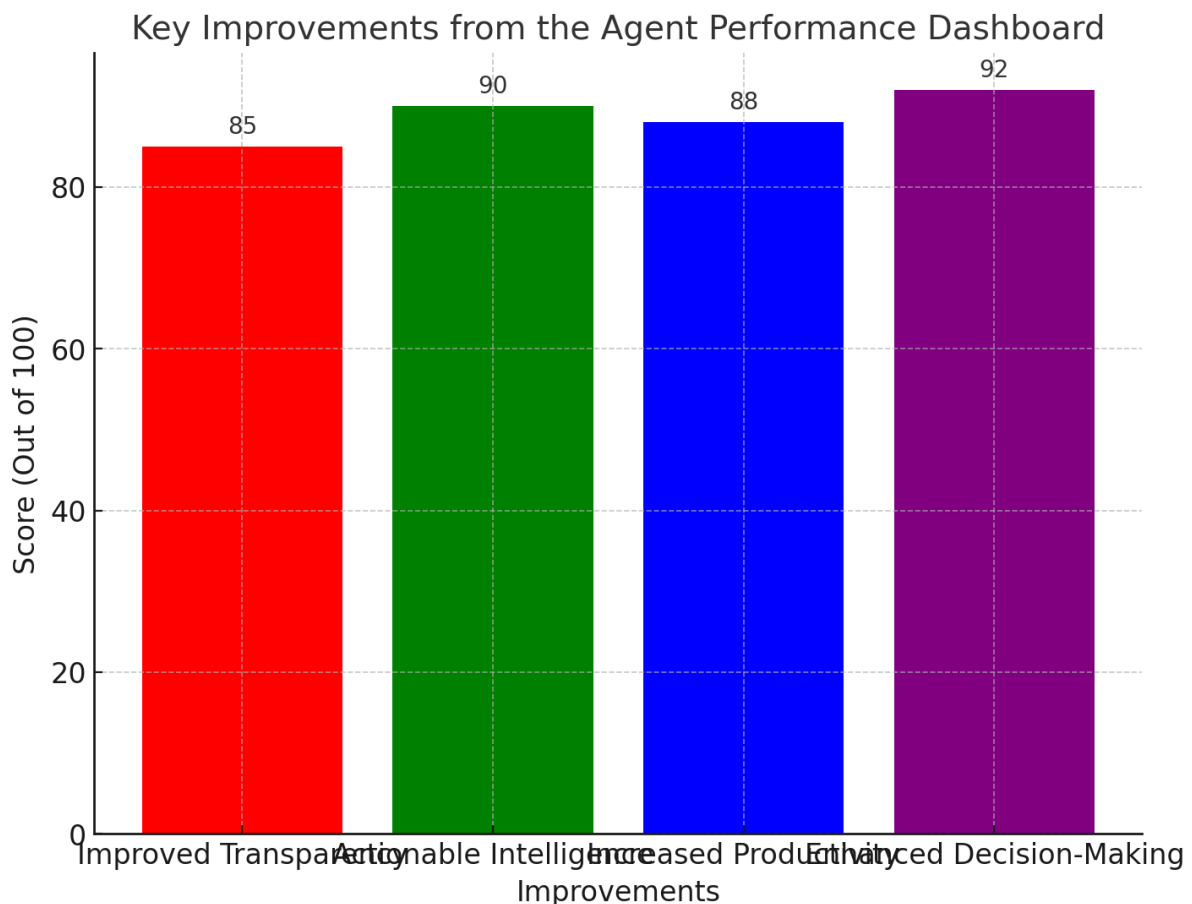


Figure 3: Key Improvements from the Agent Performance Dashboard

## V. DISCUSSION

The Agent Performance Dashboard's impact was profound, bringing substantial improvements to the call centre's performance monitoring system. A comparison table below contrasts the system before and after the implementation of the dashboard:

Aspect	Before Dashboard Implementation	After Dashboard Implementation
<b>Transparency</b>	Limited visibility into real-time performance.	Real-time insights into KPIs such as call volume, conversion rates.
<b>Decision-Making</b>	Decisions based on outdated or incomplete data.	Data-driven decisions, faster response to performance issues.
<b>Agent Performance</b>	Performance monitoring was inefficient and inconsistent.	Detailed, accurate tracking of agent performance across metrics.
<b>Productivity</b>	Low visibility of best practices, leading to inefficiencies.	Increased productivity through recognition of top performers.
<b>Customer Satisfaction</b>	Customer feedback was often delayed, making it hard to respond quickly.	Improved customer satisfaction due to timely issue resolution.

The analysis shows that the dashboard not only improved the transparency of operations but also enabled managers to adjust strategies more dynamically, fostering an environment of continuous improvement. By tracking agents'

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performance more effectively and offering tailored coaching, the dashboard helped boost productivity and morale. The ability to view performance trends over time allowed for strategic planning and proactive intervention.

## VI. CONCLUSION

The implementation of an Agent Performance Dashboard using SQL Server, SSAS, and SSRS provides a powerful solution for sales call centers looking to improve agent performance monitoring. By centralizing data, performing multidimensional analysis, and presenting actionable insights through dynamic reports, the dashboard enhances transparency, enables data-driven decision-making, and fosters a culture of continuous improvement. This solution can be adapted to various call center environments, providing a scalable and effective method of managing and optimizing agent performance.

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