

CUSTOMER SUPPORT TICKET VOLUME & RESOLUTION TIME DASHBOARD

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ABSTRACT

The **Customer Support Ticket Volume & Resolution Time Dashboard** is a data analytics and visualization system designed to help organizations monitor customer support activities and evaluate the efficiency of their support teams. Customer support departments receive a large number of tickets through email, chat, websites, phone systems, and other communication channels. Managing and analyzing these tickets manually can make it difficult to understand workload, response performance, and resolution efficiency.

The proposed system collects support ticket information such as ticket ID, creation date, category, priority, status, assigned agent, first response time, resolution time, and customer-related information. The system processes this information and calculates important performance indicators such as total ticket volume, open tickets, resolved tickets, average response time, average resolution time, and resolution rate.

The dashboard presents the analyzed information through interactive charts, graphs, tables, and Key Performance Indicators (KPIs). Support managers can compare ticket volumes across different days, weeks, months, categories, priorities, and support agents. Filters allow users to focus on specific time periods, ticket categories, teams, or priority levels.

The system also helps identify trends and operational bottlenecks. Managers can determine when ticket volume is increasing, which categories generate the most requests, and which types of tickets take longer to resolve. Resolution-time analysis can help support teams identify areas where processes, staffing, or knowledge resources may need improvement.

Overall, the **Customer Support Ticket Volume & Resolution Time Dashboard** provides a centralized and user-friendly platform for monitoring customer support performance. It reduces dependence on manually prepared reports and helps organizations make data-driven decisions to improve customer service. Future enhancements can include AI-based ticket categorization, workload forecasting, SLA breach prediction, sentiment analysis, automated alerts, and intelligent support recommendations.

I. INTRODUCTION

Customer support is an important part of maintaining customer satisfaction and building long-term relationships with users. Organizations receive support requests related to product problems, account issues, technical difficulties, billing questions, and service requests. As the number of customers increases, support teams may receive thousands of tickets that need to be handled efficiently.

Traditional customer support reporting is often performed using spreadsheets, help-desk reports, and manually prepared summaries. Support managers may need to collect information from different systems and calculate ticket volumes and resolution times manually. This process can be time-consuming and may make it difficult to obtain a real-time or frequently updated view of support operations.

Data analytics and Business Intelligence technologies can help organizations understand customer support performance more effectively. Dashboards can combine

ticket information from different sources and display important metrics through interactive visualizations. Managers can quickly identify workload changes, resolution delays, and performance trends without manually analyzing large datasets. The **Customer Support Ticket Volume & Resolution Time Dashboard** is designed to provide a centralized platform for analyzing customer support operations. It monitors ticket volume, ticket status, priority, category, response time, resolution time, and other relevant metrics. Users can compare support performance across different time periods, categories, teams, and agents.

The objective of the system is to provide clear operational insights that can help support managers improve resource allocation and service processes. By identifying periods of high workload and tickets with longer resolution times, organizations can investigate the underlying causes and take appropriate corrective actions. The system focuses on analytics and decision support rather than automatically making decisions about individual support employees.

II. LITERATURE SURVEY

Traditional customer support systems primarily use ticket-management platforms to record customer requests and track their status. These systems generally provide basic information such as ticket creation time, assigned agent, category, priority, and resolution status. Although such systems are useful for managing individual tickets, additional analysis may be required to understand overall support performance.

Customer Relationship Management and Help Desk systems provide organizations with centralized platforms for managing customer interactions. These platforms can store customer information, ticket histories, communication records, and support activities. However, the reporting capabilities of basic systems may be limited when managers need detailed comparisons across time periods, categories, teams, and resolution metrics.

Service-level analytics is commonly used to evaluate customer support performance. Metrics such as first response time, average resolution time, ticket backlog, resolution rate, reopened tickets, and SLA compliance provide different perspectives on support efficiency. Combining these metrics in a dashboard can provide managers with a more comprehensive understanding of support operations.

Data visualization techniques are widely used for customer support analytics. Line charts can show ticket volume and resolution-time trends, while bar charts can compare categories or support teams. KPI cards can provide quick summaries of open tickets, resolved tickets, response times, and resolution rates. Interactive filtering and drill-down features allow users to investigate specific operational areas.

Machine learning and Artificial Intelligence are increasingly being applied to customer support systems. AI can be used for ticket classification, priority prediction, sentiment analysis, response recommendation, and workload forecasting. These technologies can extend traditional dashboards from descriptive analytics toward predictive and intelligent support operations.

Existing research and support platforms demonstrate the value of centralized ticket data and analytics. However, many basic systems provide limited cross-dimensional comparison and may require separate reports for ticket volume and resolution performance. The proposed **Customer Support Ticket Volume & Resolution Time Dashboard** combines ticket monitoring, resolution-time analysis, trend visualization, category comparison, priority analysis, and reporting in one interactive platform.

III. SYSTEM ANALYSIS

The **Customer Support Ticket Volume & Resolution Time Dashboard** is designed to analyze customer support workload and resolution performance. The system

collects ticket information such as ticket ID, creation time, category, priority, status, assigned agent, response time, and resolution time. A data-ingestion module imports information from help-desk systems, CRM platforms, spreadsheets, or databases. The data-processing module validates records and handles missing, duplicate, or inconsistent information. The system organizes tickets according to date, category, priority, status, team, and other relevant dimensions. A KPI engine calculates total tickets, open tickets, resolved tickets, average response time, average resolution time, and resolution rate. A trend-analysis module examines changes in ticket volume and resolution time over different periods. A comparison engine allows managers to compare categories, priorities, teams, and support performance. The visualization layer presents the results using KPI cards, charts, graphs, and tables. Interactive filters allow users to analyze selected dates, categories, priorities, or teams. The dashboard can highlight workload increases and resolution delays that require further investigation. Finally, managers can generate reports and use the insights to improve support processes and resource planning.

Existing System

Existing customer support operations commonly use ticketing platforms, CRM systems, spreadsheets, and manually prepared reports. Support systems record customer tickets and allow agents to update their status as issues are handled. Managers may use built-in reports to view ticket counts and basic resolution statistics. However, detailed analysis may require exporting data and processing it separately in spreadsheets. Ticket volume may be reviewed independently from resolution-time information, making it difficult to understand their relationship. Comparing multiple categories, priorities, teams, or time periods can require manual filtering and calculations. Static reports may become outdated when new tickets are created or existing tickets are updated. Managers may also need multiple reports to understand backlog, response time, resolution time, and SLA-related performance. Identifying workload spikes can therefore take considerable effort. Traditional systems may provide limited visualization and drill-down capabilities. They may also provide limited automated alerts for unusual increases in ticket volume or resolution delays. As a result, existing systems are useful for ticket management but may not provide a comprehensive interactive view of customer support performance.

Disadvantages of Existing System

- Heavy dependence on manually prepared reports.
- Time-consuming ticket data analysis.
- Difficult to compare multiple support metrics together.
- Limited interactive visualization.
- Ticket volume and resolution analysis may be separated.
- Difficult to identify workload spikes quickly.
- Manual calculations can introduce errors.
- Limited historical trend analysis.
- Difficult to compare categories and priorities.
- Limited visibility into resolution bottlenecks.
- Reports may become outdated quickly.
- Limited automated alerts and operational insights.

Proposed System

The proposed **Customer Support Ticket Volume & Resolution Time Dashboard** provides a centralized platform for monitoring and analyzing customer support operations. The system collects ticket information from help-desk platforms, CRM systems, spreadsheets, or other supported sources. A data-processing layer cleans and

standardizes the information before analysis. The system organizes tickets according to creation date, category, priority, status, team, and assigned agent. A KPI engine calculates total ticket volume, open tickets, resolved tickets, average response time, average resolution time, resolution rate, and backlog. A trend-analysis engine identifies changes in ticket volume and resolution performance across different periods. A comparison engine allows managers to compare ticket categories, priority levels, teams, and support performance. Interactive visualizations display the results through charts, graphs, tables, rankings, and KPI cards. Users can filter the dashboard by date, category, priority, status, and team. The system can highlight significant increases in ticket volume and unusually long resolution times for further investigation. Reports can be generated for management review and operational planning. Future AI modules can provide forecasting and intelligent recommendations while keeping final decisions under human supervision.

Advantages of Proposed System

- Provides centralized customer support analytics.
- Automatically calculates important support KPIs.
- Tracks ticket volume and resolution time together.
- Supports category-wise ticket analysis.
- Provides priority-wise performance analysis.
- Enables team and agent-level aggregate comparison.
- Displays historical ticket trends.
- Identifies workload increases and resolution delays.
- Provides interactive charts and visualizations.
- Supports filtering and drill-down analysis.
- Reduces manual reporting effort.
- Helps improve support resource planning.

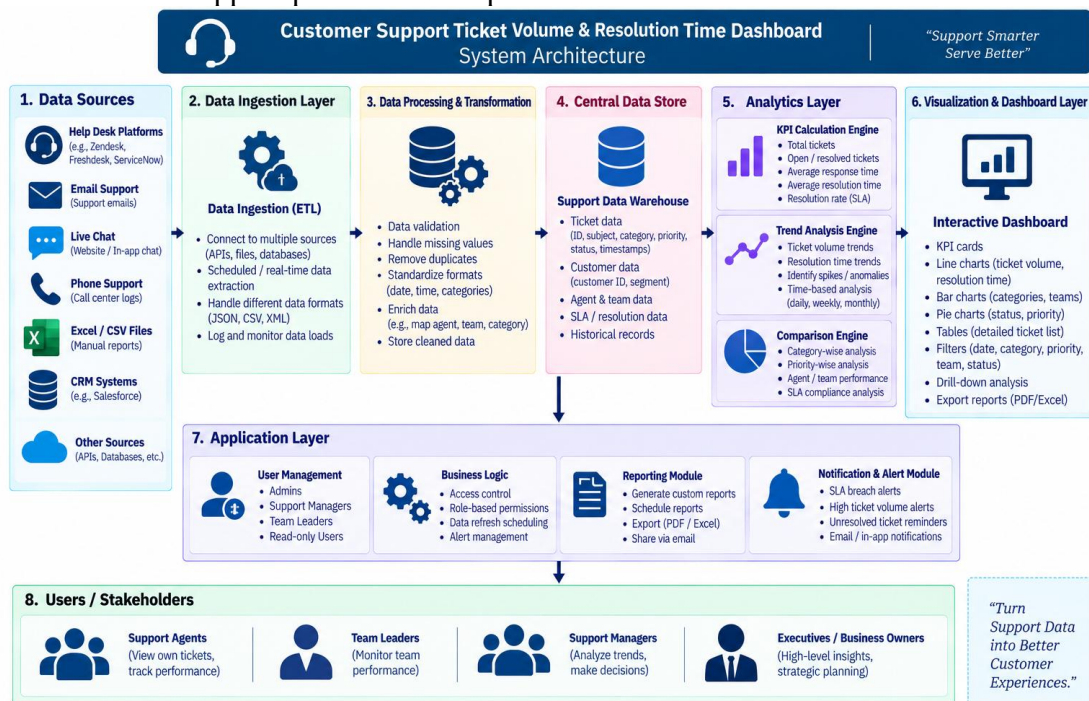
IV. METHODOLOGY

The methodology begins by collecting customer support ticket data from help-desk platforms, CRM systems, spreadsheets, or databases. The data-ingestion module imports the available ticket information into the analytics platform. The preprocessing module validates records, removes duplicates, handles missing values, and standardizes date, category, priority, and status formats. The cleaned data is organized into structured datasets containing tickets, categories, priorities, agents, teams, timestamps, and resolution information. A KPI calculation engine calculates ticket volume, open and resolved tickets, average response time, average resolution time, backlog, and resolution rate. A trend-analysis module examines ticket volume and resolution performance across daily, weekly, monthly, and yearly periods. A comparison engine compares categories, priorities, teams, and other relevant dimensions. The visualization engine converts the processed information into KPI cards, line charts, bar charts, tables, and performance indicators. Users can apply filters to analyze selected dates, categories, priorities, statuses, and teams. The system identifies significant changes in workload and resolution performance for further investigation. Reports can be generated and exported for management review. Finally, the dashboard provides an interactive overview of customer support performance to support operational planning and service improvement.

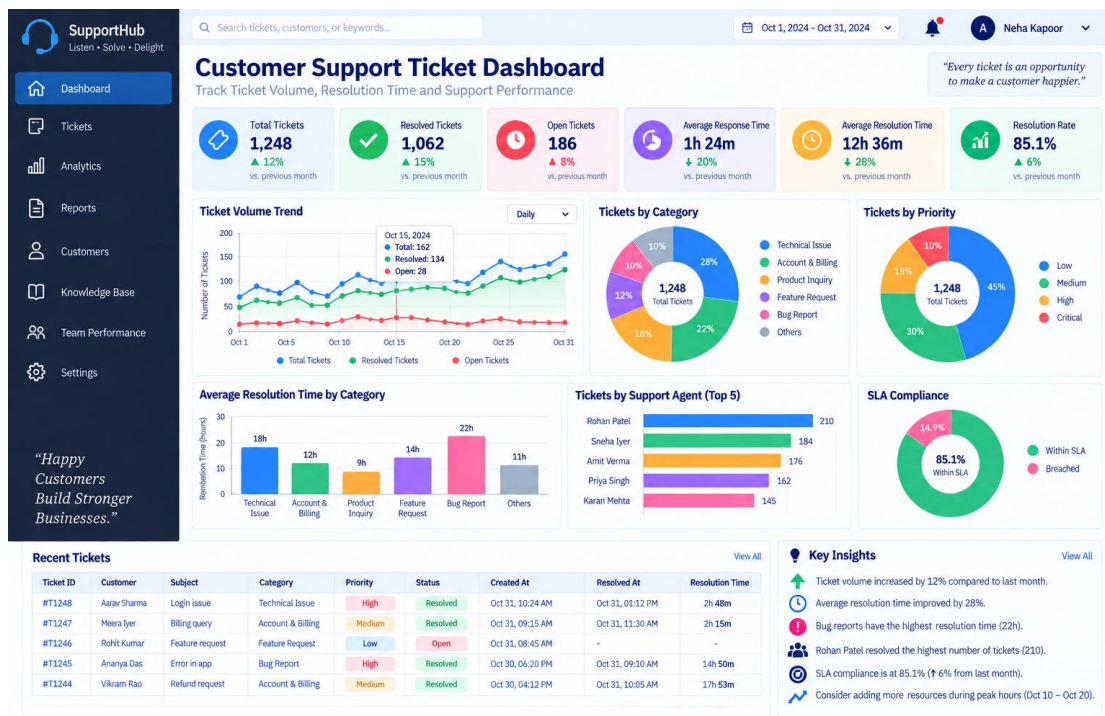
SYSTEM ARCHITECTURE

The Customer Support Ticket Volume & Resolution Time Dashboard consists of several interconnected layers for collecting, processing, analyzing, and visualizing support ticket information. The User Interface allows support managers and administrators to access dashboards, filters, charts, and reports. The Data Ingestion

Layer collects ticket information from help-desk systems, CRM platforms, spreadsheets, databases, and supported APIs. The Data Cleaning and Transformation Module validates records, handles missing values, removes duplicates, and standardizes ticket information. The Central Support Data Store maintains structured information about tickets, customers, categories, priorities, agents, teams, timestamps, and resolution records. The KPI Calculation Engine calculates ticket volume, backlog, resolution rate, response time, and resolution time. The Trend Analysis Engine analyzes historical changes in ticket volume and resolution performance. The Comparison Engine compares ticket categories, priorities, teams, and reporting periods. The Visualization Engine creates KPI cards, charts, graphs, tables, rankings, and trend indicators. The Filter and Drill-Down Module allows users to explore selected dates and support dimensions. The Reporting Module generates downloadable support-performance reports.



V. RESULT AND OUTPUT



VI. CONCLUSION

The Customer Support Ticket Volume & Resolution Time Dashboard provides an effective and centralized solution for monitoring customer support operations. The system brings important information such as ticket volume, open and resolved tickets, response time, resolution time, priority, category, and SLA performance into a single interactive dashboard.

By using data processing, KPI analysis, trend analysis, and data visualization, the system transforms raw support-ticket information into meaningful operational insights. Support managers can identify increases in ticket volume, compare different categories and priorities, analyze resolution performance, and understand support workload through interactive charts, tables, and KPI cards.

The dashboard also helps organizations identify potential bottlenecks in the support process. By monitoring average response time, resolution time, backlog, and SLA compliance, managers can investigate areas that require improvement and make better decisions about resource allocation and support processes. Historical trends can also help teams understand changes in workload over time.

Overall, the Customer Support Ticket Volume & Resolution Time Dashboard improves the efficiency, visibility, and accessibility of customer support analytics. It can help organizations improve service quality and make data-driven operational decisions. Future enhancements can include AI-based ticket classification, sentiment analysis, workload forecasting, SLA-breach prediction, automated alerts, intelligent ticket prioritization, and AI-powered support recommendations.

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