SIEHS HR Analytics Dashboard Report

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Abstract

Sindh Integrated Emergency & Health Services (SIEHS) is responsible for managing a large network of emergency and healthcare professionals across Sindh, Pakistan. Efficient human resource (HR) operations are crucial for ensuring timely service delivery, especially in emergency settings. This report documents the development of an HR analytics dashboard built using Power BI to analyze employee attendance, punctuality, and leave patterns. The dashboard leverages timestamp-based HR data for approximately 1,790 employees across multiple departments and locations. It visualizes key performance indicators (KPIs) such as attendance percentage, absenteeism rate, average working hours, leave types, and invalid entries. The goal of this project was to improve workforce visibility, support data-driven decision making, and track operational efficiency. The results indicate improvements in punctuality and strengthened monitoring capabilities within the organization.

1 Introduction

SIEHS operates one of the largest emergency response systems in Pakistan. Given the high stakes of emergency medical services, timely attendance and shift compliance are mission-critical factors. Before this analytics initiative, HR performance monitoring was conducted manually, making it difficult to identify inefficiencies and trends across the workforce.

This project introduces an automated and visually intuitive dashboard that consolidates HR metrics into a single analytical interface. It aims to support management in understanding employee behavior, reducing late arrivals, minimizing absenteeism, and identifying departments requiring operational intervention.

2 Data and Methodology

2.1 Data Source

The dataset consists of employee-level attendance records including timestamps, department information, shift assignments, and leave details. The dataset covers 1,790 employees distributed across major functional units such as:

- Operations Wing (EMS)
- Command and Control
- Technical Wing
- People and Culture

- Public Relations
- Research and Development

2.2 Data Cleaning and Processing

Initial data preparation was performed in Excel and Python. Cleaning steps included:

- Removing duplicate or corrupted entries.
- Standardizing department and location names.
- Identifying invalid timestamp entries (e.g., missing check-in/out).
- Calculating punctuality metrics and attendance rates.
- Classifying approved vs. unapproved leave types.

KPIs were computed such as:

- Attendance Percentage
- Absent Percentage
- Total Late Attendance
- Total Annual Leaves
- Average Working Hours

3 Dashboard Design

The dashboard was developed in Microsoft Power BI due to its ability to support dynamic filtering and drill-down interactions. A dark theme was selected to enhance visual clarity.

Figure 1 shows the complete dashboard layout including:

- Overall employee count and attendance KPIs at the top.
- Department-wise punctuality performance.
- Leave statistics by location.
- Invalid entry tracker for data quality monitoring.
- Distribution of leave types and shift scheduling.

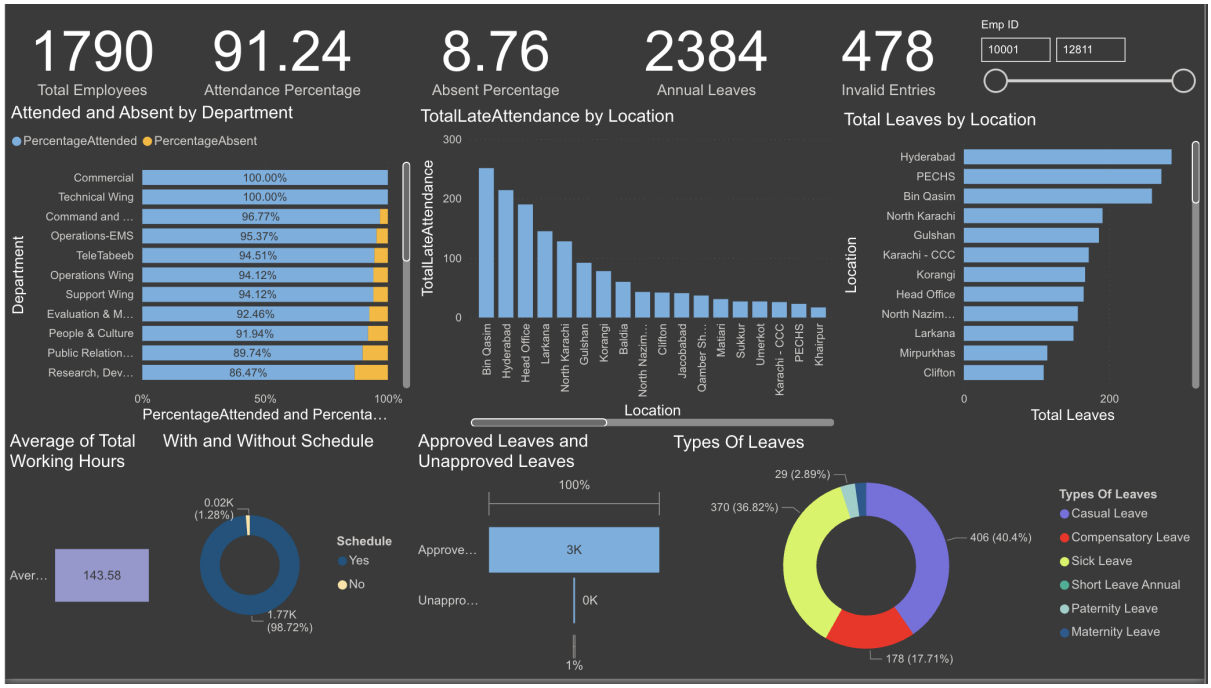

Figure 1: Overview of the HR Analytics Dashboard visualizing attendance, leaves, and punctuality metrics for SIEHS employees.

4 Results and Findings

The dashboard enabled rapid interpretation of HR performance across the organization. Major findings include:

4.1 Attendance Performance

- The overall attendance percentage was approximately 91.24%.
- The absenteeism rate remained below 10%, which is operationally acceptable.
- Some departments exhibited higher absence rates due to field-based duties.

4.2 Punctuality Analysis

- A significant number of late arrivals were recorded at high-density locations such as Bin Qasim and Hyderabad.
- The invalid entry tracker highlighted areas for system improvement in biometric recording.

4.3 Leave Insights

- Sick leave and annual short leave represented the majority of total leaves.

- Leave trends showed seasonal variations requiring scheduling adjustments.

4.4 Impact of the Dashboard

After implementation:

- A measurable improvement in punctuality was observed, estimated at around 10%.
- HR managers were able to identify at-risk departments for targeted interventions.
- Data-driven policies were adopted for leave approval and shift assignment.

5 Conclusion

The SIEHS HR Analytics Dashboard provides a centralized and automated solution for monitoring employee attendance and operational efficiency. The ability to analyze trends at department and location levels has strengthened HR oversight and improved organizational decision-making. Future enhancements may include:

- Predictive analytics for absenteeism risk.
- Integration with mobile attendance systems.
- Employee performance correlation with service delivery metrics.

This project demonstrates the value of business intelligence tools in healthcare and emergency service environments, where operational readiness is essential for saving lives.