HR ANALYTICS REPORT

Employee Attendance, Productivity & Attrition Risk Analysis

Prepared by: OLUWATOMIWA ADELEKE
E-mail: oluwatomiwaadeleke@gmail.com
Linkedln, Github

1. PROJECT INTRODUCTION

1.1 Introduction

Human Resources teams require reliable insights to understand workforce productivity, attendance behavior, and potential attrition risks.

This project analyzes employee attendance, productivity, overtime patterns, and attrition risk to support data-driven HR decision-making. Using Excel, Power Query, Power Pivot, and dashboard visualizations, raw HR data was transformed into actionable insights that highlight workforce health, operational risk, and areas for intervention.

Rather than relying solely on averages, the analysis emphasizes distribution-based insights, productivity behavior, and early warning signals for attrition. The final output is an executive-friendly dashboard designed to support HR leaders in monitoring performance, engagement, and retention.

1.2 Business Problem Statement

Organizations often struggle to proactively identify:

- Declining productivity
- Attendance-related performance issues
- Early signs of employee attrition risk

The goal of this project is to answer:

- How productive is the workforce across departments?
- Are absenteeism and overtime affecting performance?
- Which employees or departments show early attrition risk?
- What operational insights can HR leaders act on immediately?

1.3 Data Overview

The dataset was created to simulate a real-world internal HR system, similar to data sourced from:

- Attendance tracking systems
- Performance evaluation tools
- Employee master records.

This approach mirrors how analysts often work with internal company data that is not publicly available.

Key Tables:

- Employee Information
- Attendance
- Performance
- Exit Data

2. Project Phases & Methodology

This project followed a structured, end-to-end analytics workflow designed to reflect real-life HR analytics practice. Each phase built on the previous one, ensuring analytical accuracy and business relevance.

2.1 Data Cleaning & Preparation (Power Query)

Raw HR datasets were cleaned and prepared using Power Query. This phase focused on ensuring data accuracy, consistency, and reliability before analysis.

Key activities included:

- Removing duplicate employee and attendance records
- Standardizing department and role names
- Validating date and numeric data types
- Handling missing values using business rules
- Assigning zero working hours to absent employees
- Performing cross-table data quality checks

2.2 Data Modelling (Power Pivot)

A relational data model was built using Power Pivot to support accurate aggregation and filtering.

Key modelling decisions:

- Creation of an Employee Summary table at employee-level granularity
- Establishment of relationships between employee, attendance, and performance tables
- Development of calculated columns for:
    - ❖ Absence count
    - ❖ Average overtime hours
    - ❖ Productivity classification
    - ❖ Attrition risk flag

This structure prevented misleading aggregations and enabled meaningful department-level analysis.

2.3 KPI DEVELOPMENT

Key performance indicators (KPIs) were created to provide an executive overview of workforce health.

KPIs included:

- Total Employees
- Absenteeism Rate
- Productivity Distribution
- Attrition Risk Percentage

During analysis, it was observed that average productivity values were uniform across departments. As a result, the analysis shifted from simple averages to distribution-based productivity metrics, enabling deeper insight into employee performance.

2.4 Department-Level & Attrition Analysis

Department-level analysis was conducted to uncover operational risks and performance patterns.

Key analyses included:

- Productivity distribution by department
- Absenteeism patterns across departments
- Attrition risk concentration

Attrition risk was derived using a rule-based approach combining absenteeism, overtime, and productivity metrics.

2.5 Dashboard Design & Visualization

An executive-style Excel dashboard was developed to communicate insights clearly and efficiently.

Dashboard features:

- KPI cards for high-level overview
- Productivity distribution visuals
- Absenteeism vs productivity analysis
- Attrition risk breakdown

The dashboard was designed with clarity, consistency, and executive usability in mind.

3. KEY FINDINGS

3.1 What is the overall workforce size and structure?

The organization maintains a stable workforce with employees distributed across multiple departments, enabling department-level analysis.

3.2 How does productivity vary across employees and departments?

While average productivity appeared consistent across departments, distribution-based analysis revealed varying concentrations of high and medium performers, highlighting differences not visible through averages alone**.**

3.3 Is absenteeism impacting employee productivity?

Employees with higher absence counts generally showed lower productivity levels, indicating absenteeism as a potential early performance risk factor.

3.4 What proportion of employees show attrition risk?

The majority of employees were classified as low risk, suggesting overall workforce stability. However, absenteeism and overtime patterns indicate areas requiring monitoring.

3.5 Are there departments with higher operational risk indicators?

Certain departments exhibited higher absenteeism and lower productivity distributions, signalling where targeted HR interventions may be beneficial.

Generally, Productivity distributions provide stronger insights than single KPIs, Absenteeism and overtime are early indicators of potential attrition, Low attrition risk can be a positive insight when properly interpreted

4. Recommendations and Conclusion

4.1 Recommendations

- Use distribution-based metrics alongside averages in HR reporting
- Monitor absenteeism and overtime trends proactively
- Focus HR interventions on departments showing early risk indicators
- Maintain employee-level summary tables for accurate analysis

4.2 Conclusion

This project demonstrates how structured data cleaning, thoughtful modelling, and purposeful visualization can transform HR data into actionable insights. It highlights the importance of analytical judgment and metric selection in real-world analytics projects.

Tools

- Microsoft Excel
- Power Query
- Power Pivot (DAX)
- PivotTables & PivotCharts
- Dashboard Design Principles