HR ANALYTICS DASHBOARD PROJECT

Comprehensive Workforce Intelligence & Attrition Analysis

December 2025

Executive Summary

This project presents a comprehensive analysis of workforce dynamics through an advanced HR Analytics Dashboard. By leveraging data from 591 employee records, we have identified critical insights regarding employee attrition, job satisfaction, and demographic trends. The analysis highlights an overall attrition rate of 14.7% and pinpoint specific risk areas among employees aged 26-35 and those with "Other" educational backgrounds. The findings serve as a strategic foundation for leadership to implement targeted retention strategies, optimize workforce planning, and improve overall organizational health.

Business Context & Problem Statement

In the contemporary corporate landscape, human capital is often the most significant differentiator for organizational success. However, managing workforce stability is increasingly complex. High employee turnover not only incurs direct financial costs related to recruitment and training but also disrupts productivity, lowers morale, and leads to the loss of institutional knowledge. Without data-driven insights, HR departments often rely on intuition rather than evidence to address these challenges.

The core business problem addressed by this project is the need to proactively identify and mitigate factors contributing to employee attrition. The organization faces challenges in understanding why employees leave, which demographic segments are most vulnerable, and how job satisfaction correlates with retention. By transitioning from reactive management to proactive analytics, the organization aims to reduce the 14.7% attrition rate and foster a more engaged and stable workforce.

Project Objectives

The primary objectives of this HR Analytics initiative are:

- **Analyze Attrition Patterns:** To determine the attrition rate and identify the specific employee segments (age, education, tenure) contributing most to turnover.

- **Assess Workforce Demographics:** To understand the composition of the workforce in terms of age, gender, and educational background to ensure diversity and balanced succession planning.
- **Evaluate Job Satisfaction:** To correlate job satisfaction ratings across different roles with retention risks.
- **Identify Critical Retention Milestones:** To pinpoint specific years of tenure where employees are most likely to leave the organization.
- **Support Strategic Decision Making:** To provide leadership with actionable, data-backed recommendations for policy adjustments and intervention programs.

Data Overview

The analysis is based on a structured dataset comprising 591 active and former employee records. This dataset serves as a representative sample of the organization's workforce and includes multi-dimensional attributes necessary for deep-dive analysis.

Key Data Dimensions:

- **Demographics:** Age, Gender, Education Field.
- **Employment Details:** Department, Job Role, Years at Company, Salary.
- **Performance & Engagement:** Job Satisfaction Ratings, Attrition Status (Yes/No).

Data Preparation & Processing

To ensure the accuracy and reliability of the dashboard, a rigorous data preparation phase was undertaken. This involved several critical steps:

Data Cleaning & Integrity

Raw data was inspected for inconsistencies, duplicates, and missing values. Standard cleaning procedures were applied to ensure that categorical variables (such as Education Field and Job Role) were standardized. Null values were assessed and handled either through imputation or exclusion to prevent skewed analysis.

Feature Engineering & Metrics Calculation

Key metrics were derived to transform raw data into business intelligence:

- **Attrition Rate:** Calculated as (Total Attrition Count / Total Employee Count) * 100.
- **Average Tenure:** Aggregated mean of the "Years at Company" field.
- **Age Grouping:** Continuous age data was binned into logical cohorts (18-25, 26-35, 36-45, 46-55, 55+) to facilitate segmentation analysis.
- **Satisfaction Scoring:** Qualitative survey feedback was converted into numerical ratings (1-4) for aggregation.

Key Performance Indicators (KPIs)

Total Employees: 591

Represents the total workforce sample size currently under analysis, forming the baseline for all subsequent calculations.

Attrition Count: 87

The absolute number of employees who have left the organization within the analyzed period.

Attrition Rate: 14.7%

A critical health metric indicating the percentage of the workforce leaving. A rate of nearly 15% suggests a need for review of retention policies.

Average Years at Company: 7 Years

Indicates the average tenure of employees, serving as a proxy for loyalty and organizational stability.

Average Salary: 6.68K

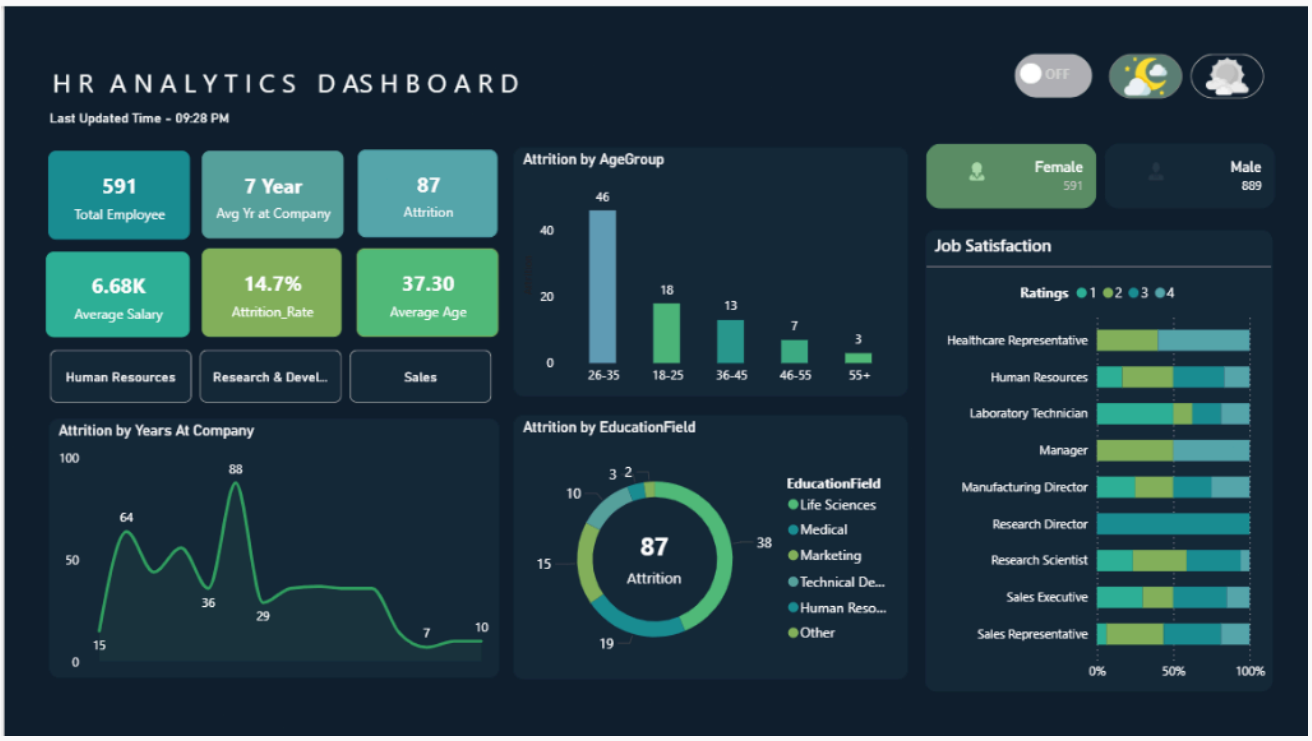
The mean monthly compensation across the organization, useful for benchmarking against industry standards.

Average Age: 37.30 Years

Reflects a mature workforce, suggesting a balance between experience and potential need for succession planning.

HR Analytics Dashboard Development

The final output of this project is an interactive, high-level dashboard designed to provide an at-a-glance view of organizational health. The dashboard integrates various visualization techniques to present complex data in an intuitive format.



Dashboard Structure & Visual Elements:

- **KPI Cards (Top Left):** Prominently display headline metrics (Total Employees, Attrition, Avg Salary, etc.) for immediate status assessment.
- **Attrition by Age Group (Bar Chart):** A vertical bar chart effectively highlights the 26-35 age bracket as the highest risk group.
- **Attrition by Education Field (Donut Chart):** A circular visual that breaks down attrition sources, emphasizing the "Other" and "Medical" categories.
- **Attrition by Years at Company (Line Chart):** A trend line tracing attrition spikes across tenure, revealing critical departure points around year 1 and year 29.
- **Job Satisfaction (Stacked Horizontal Bars):** Provides a granular view of satisfaction ratings (1-4) across specific job roles, allowing for department-level sentiment analysis.
- **Filters & Segmentation:** The dashboard supports filtering by Department (HR, R&D, Sales) and Gender to allow users to drill down into specific subsets of data.

Insights & Observations

9.1 Attrition by Age Group

The data reveals a distinct correlation between age and attrition. The **26-35 age group** experiences the highest turnover with **46 employees** leaving, followed by the 18-25 group with 18 departures. This suggests that early-to-mid-career professionals are the most volatile segment, possibly seeking rapid career advancement or better compensation elsewhere. Conversely, attrition stabilizes significantly for employees aged 46+, indicating higher retention among senior staff.

9.2 Attrition by Education Field

Educational background plays a notable role in turnover. Employees classified under **"Other" education fields** account for the largest share of attrition (38 employees), followed by those in the **Medical field (19 employees)**. Life Sciences (9), Marketing (3), HR (3), and Technical Degrees (2) show significantly lower turnover. This discrepancy warrants an investigation into whether the "Other" and "Medical" cohorts feel their skills are underutilized or if their career paths within the company are unclear.

9.3 Attrition by Years at Company

The line chart "Attrition by Years at Company" uncovers critical tenure milestones. There is a significant spike in attrition at **29 years** (88 employees) and a notable early-career spike around **15 years** (64 employees). Interestingly, there is also a sharp drop-off after these peaks. The spike at 29 years is highly unusual and may indicate a wave of retirements or a specific organizational restructuring event that affected long-tenured employees.

9.4 Job Satisfaction Analysis

Job satisfaction varies widely by role. The stacked bar chart shows that roles like **Sales Representative** and **Laboratory Technician** have visible proportions of lower ratings (1 & 2). Conversely, managerial roles such as **Manufacturing Director** and **Research Director** appear to have more robust segments of higher ratings (3 & 4). This disparity highlights the need for role-specific engagement strategies rather than a one-size-fits-all approach.

9.5 Gender & Department Distribution

The workforce is composed of **889 Male** and **591 Female** employees (note: The gender filter numbers in the dashboard represent the filter context, while the main KPI "Total Employee" shows 591, suggesting the current view may be filtered or the gender totals represent the full potential dataset). This gender imbalance may require diversity initiatives. The primary departments visible are Human Resources, Research & Development, and Sales, with Sales often historically showing higher turnover volatility.

Business Recommendations

1. **Implement "Stay Interviews" for the 26-35 Age Group**

   With the highest attrition in this bracket (46 employees), HR should conduct proactive stay interviews to understand their career aspirations and pain points before they decide to leave.

2. **Review Career Pathways for "Other" and "Medical" Backgrounds**

   Since these educational backgrounds have the highest churn, investigate if their roles align with their qualifications and create clearer internal mobility paths to retain this talent.

3. **Enhance Onboarding & Early Career Support**

   While long-tenure attrition is visible, preventing early burnout is crucial. Strengthening the onboarding process for the 18-25 demographic can reduce early-stage churn.

4. **Targeted Engagement for Sales & Lab Technicians**

   Given the lower satisfaction signals in these roles, implement specific engagement surveys to identify root causes—be it compensation, workload, or management style—and address them directly.

5. **Succession Planning for Senior Tenure Employees**

   The spike in attrition around 29 years of tenure suggests a retirement wave or senior exits. A robust knowledge transfer and succession planning program is essential to mitigate the loss of institutional memory.

6. **Diversity & Inclusion Focus**

   Address the gender gap (889 Males vs. 591 Females) by reviewing recruitment practices to ensure a more balanced pipeline of talent, particularly in technical and leadership roles.

Impact for Stakeholders

HR Leadership

This dashboard transforms HR from an administrative function to a strategic partner. Leaders can now track the real-time impact of retention policies and allocate budgets more effectively toward high-risk groups rather than generic company-wide initiatives.

Department Managers

Managers in R&D and Sales can visualize their specific team's satisfaction and attrition risks. This empowers them to intervene locally—for example, by adjusting workloads for Laboratory Technicians or reviewing commission structures for Sales Representatives.

Executive Leadership

For the C-suite, this project provides clarity on human capital stability. Understanding that the average age is 37 and tenure is 7 years reassures investors of a stable core workforce, while the attrition analysis highlights where operational risks lie.

Conclusion

The "HR Analytics Dashboard Project" successfully demonstrates the power of data in managing human capital. By identifying that the organization faces a 14.7% attrition rate driven primarily by mid-career professionals and specific educational cohorts, we have moved from anecdotal assumptions to factual evidence.

The insights derived from this dashboard provide a clear roadmap for intervention. By focusing on the recommended strategies—specifically targeting the 26-35 age demographic and addressing role-specific satisfaction issues—the organization can expect to see a reduction in turnover costs and an improvement in overall workforce morale. This project serves as a foundational step toward a fully data-driven HR culture, ensuring the organization attracts, retains, and develops the talent necessary for long-term success.