

HR Data Analysis Project:

Employee Performance, Retention & Diversity Insights

Project Background

This project analyzes HR data to uncover trends in employee performance, retention, and workforce composition. The dataset includes demographics, satisfaction levels, performance reviews, and organizational details across departments and roles.

The goal is to deliver actionable insights that support data-driven decisions in talent management, diversity, and employee engagement. A Power BI report was developed with interactive visualizations to explore key metrics by tenure, role, department, and satisfaction.

A dedicated **Performance Tracker** enables detailed review of individual employee trends over time, helping HR teams monitor development and identify early intervention opportunities.

The analysis highlights risk factors contributing to attrition and areas where strategic HR actions can improve retention and equity.

Executive Summary

This analysis is based on HR data from **1,470 employees**, spanning a 10-year period from 2012 to 2022. The project was completed using **Power BI** and includes data modeling, transformation, and the development of interactive dashboards focused on workforce composition, satisfaction, and attrition trends.

The report highlights an overall **attrition rate of 16%**, with notably higher rates among employees who travel frequently and those required to work overtime. Attrition was also significantly higher during the early years of employment, emphasizing the importance of onboarding and early engagement strategies.

The majority of employees fall within the **20–29 age group**, and there is a slight female majority in the workforce. Disparities in compensation are evident — while white employees have the highest average salaries, those from mixed or multiple ethnic backgrounds earn among the lowest.

These insights support the need for data-driven HR strategies aimed at improving retention, promoting equity, and enhancing the overall employee experience.

Insights and Recommendations

Workforce Composition

Key Insights

- The highest number of active hired employees was recorded in 2022.
- The Technology department is the largest.
- Women slightly outnumber men, while non-binary employees represent 8.5% of the workforce.

- Employee ages range from 18 to 51.
- Most employees are aged 20–29, indicating a young workforce.

The organization has cultivated a youthful and diverse workforce, primarily concentrated in technical roles. While gender distribution appears balanced and inclusive, these patterns raise important questions about pay equity across gender, roles, and ethnic backgrounds.

Recommendation

Continue to support diverse hiring practices, but expand focus to ensure equity in advancement and compensation. Develop career progression pathways to retain younger talent.

Diversity and Equity

Key Insights

- White employees receive the highest average salaries.
- Employees from mixed or multiple ethnic backgrounds earn among the lowest.
- Managers have the highest average salaries; within the same roles, no significant gender-based pay disparities were observed.
- The workforce demonstrates visible diversity in gender and identity.

While the organization reflects strong gender and identity diversity, racial pay equity remains a concern. Notable salary disparities across ethnic groups may point to structural inequities, which could negatively impact employee morale, perceptions of fairness, and long-term retention.

Recommendation

Conduct a pay equity audit and introduce transparent compensation frameworks. Align HR strategy with diversity goals that go beyond representation, focusing on inclusion and equitable reward systems.

Attrition Analysis

Key Insights

- Overall attrition rate is 16%.
- Attrition peaks among frequent travelers and employees working overtime.
- Early-tenure employees first 2 years are most likely to leave.

Attrition is concentrated in specific employee groups, suggesting work-life balance and early engagement as key risk factors. Frequent travelers and those working overtime face higher stress levels, while early exits highlight a gap in onboarding or integration.

Recommendation

Review travel and overtime expectations to reduce burnout. Invest in early-stage retention strategies such as onboarding programs, mentorship, and check-ins during the first year.

Performance and Satisfaction

Key Insights

- Gaps exist between self-ratings and manager ratings.
- Satisfaction scores (job, environment, work-life balance) vary across individuals.
- Individual cases show mismatches in performance perception.

Employee development is closely tied to feedback and recognition. In cases where employees rate themselves higher than managers do, it may signal communication gaps or unmet expectations. Satisfaction variability also points to uneven experiences across the organization.

Recommendation

Strengthen feedback processes through regular performance conversations and development plans. Use satisfaction data to identify low-morale teams and deploy targeted support or policy changes. Equip managers with tools to spot and address perception mismatches early. Use the Performance Tracker to guide personalized coaching or support conversations.