

IBM Employee Attrition Analysis: A Data-Driven Approach to Retention

This presentation details an internship project undertaken with Unified Mentor Pvt. Ltd., focusing on a comprehensive analysis of IBM employee attrition. Utilising the powerful capabilities of Power BI, our primary objective was to uncover the underlying causes of employee turnover and formulate actionable, data-driven strategies to enhance retention. By delving into various facets of employee data, we aim to provide valuable insights that can inform targeted interventions and foster a more engaged and stable workforce.

Project Overview

- **IBM Employees Attrition Analysis:** A detailed study into the factors contributing to employee turnover within IBM.
- **Internship Project – Unified Mentor Pvt. Ltd.:** Conducted as part of a professional internship, combining academic rigour with real-world application.
- **Tool: Power BI:** Leveraging Power BI for its robust data visualisation and analytical capabilities, enabling the transformation of raw data into understandable insights.
- **Objective: Reduce Attrition Through Data-Driven Decisions:** The core aim is to identify key attrition drivers and propose strategic recommendations grounded in empirical evidence, thereby supporting proactive measures to retain talent.

Understanding the Landscape: Key Metrics from the IBM Dataset

Our analysis began with a thorough examination of the IBM employee dataset, establishing a baseline understanding of key workforce demographics and performance indicators. These foundational metrics are crucial for contextualising our findings and highlighting the scale of the attrition challenge. By quantifying the total employee count, attrition figures, average job satisfaction, and salary hike percentages, we set the stage for a deeper dive into the specific factors influencing employee departures.

Dataset & Key Performance Indicators (KPIs)

1470

Total Employees

The overall headcount within the analysed IBM dataset, representing the entire population under study.

237

Attrition Count

The total number of employees who have left the organisation, a critical figure for retention strategies.

2.47

Avg Job Satisfaction

An average score indicating the general sentiment of employees towards their roles and workplace, on a scale of 1 to 4 (1=Low, 4=High).

15.21%

Avg Salary Hike

The average percentage increase in salary across the employee base, reflecting compensation adjustment trends.

These KPIs provide a snapshot of the current state, guiding our subsequent analysis to pinpoint specific areas of concern and potential opportunities for improvement within IBM's workforce management strategies.

Unveiling Patterns: Key Insights from Attrition Data

Through rigorous data analysis, several critical patterns emerged, offering profound insights into the primary drivers of employee attrition at IBM. These insights move beyond superficial observations, pinpointing specific demographic segments, departmental dynamics, and satisfaction levels that are most susceptible to turnover. Understanding these root causes is paramount for developing targeted and effective retention strategies.

Key Attrition Insights

- 1 High Attrition at Early & Mid-Career Stages**

Our findings indicate a significant churn among employees who are either new to the company or are in the process of establishing their careers. This suggests potential issues with onboarding, career progression pathways, or recognition for contributions during these formative professional periods. Addressing these stages with tailored support and development could dramatically impact overall retention.
- 2 R&D + Overtime + Low Satisfaction = Highest Attrition**

A potent combination of factors—being in the Research & Development department, consistently working overtime, and reporting low job satisfaction—creates a high-risk scenario for attrition. This highlights a critical need to evaluate workload management, work-life balance, and job design within R&D, alongside initiatives to boost morale and engagement in this demanding sector.
- 3 Single & Male Employees Show Higher Attrition**

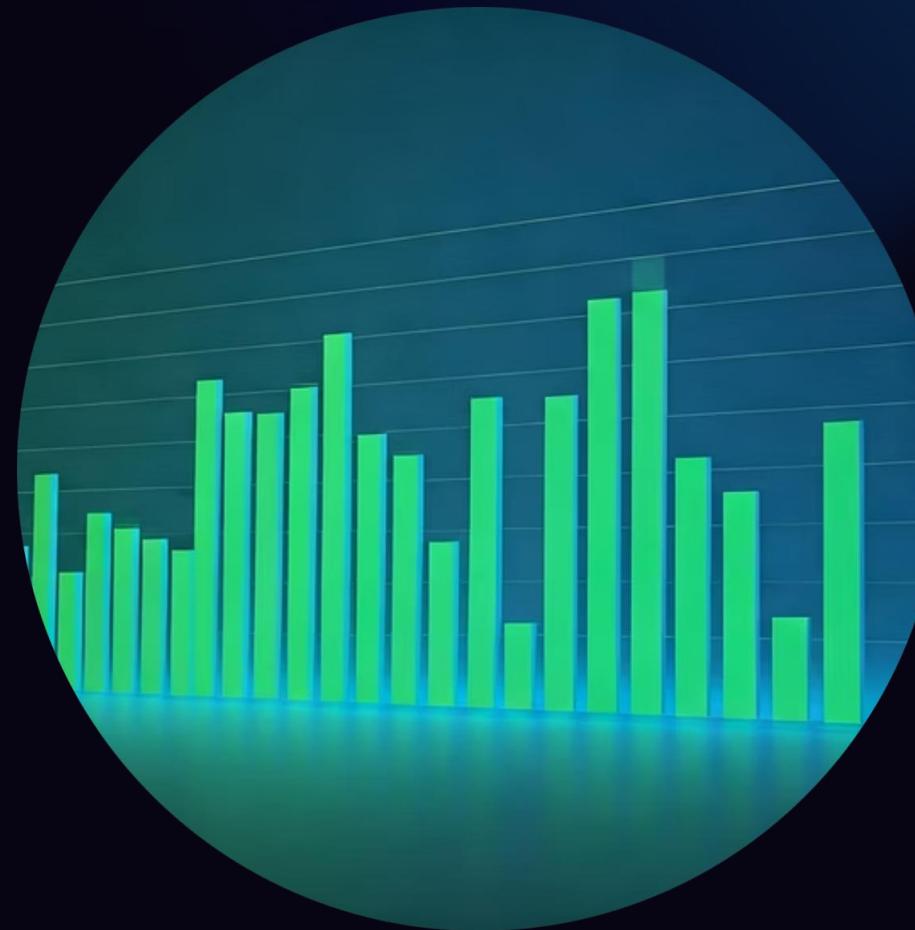
Surprisingly, our analysis revealed that single and male employees exhibit a higher propensity to leave the organisation. This demographic-specific insight warrants further investigation into potential unmet needs, career aspirations, or social support structures that might differ for these groups. Understanding these nuances can help in designing more inclusive and supportive workplace policies.

These insights serve as a strong foundation for crafting precise interventions, ensuring that retention efforts are not broad-stroke but rather focused on the most vulnerable segments of the workforce.

Visualising Attrition: Dashboard Highlights

The Power BI dashboard developed during this project offers a dynamic and interactive visualisation of attrition trends, making complex data accessible and understandable. These visual highlights enable HR leaders and managers to quickly grasp the severity and distribution of attrition across various employee segments. By presenting data on age groups, salary hikes, job satisfaction, and departmental distribution, the dashboard serves as a powerful tool for ongoing monitoring and strategic planning.

Dashboard Highlights



Attrition by Age Group

This visual breaks down employee turnover by different age brackets, revealing which generations or career stages are most affected. It allows for the identification of specific cohorts requiring tailored retention efforts, whether it's early-career professionals or those nearing retirement.



Attrition by Salary Hike

This chart correlates attrition rates with the percentage of salary increases. It helps in understanding if compensation adjustments are adequately motivating employees or if perceived unfairness in raises contributes to departures, highlighting areas for compensation policy review.



Attrition by Job Satisfaction & Department

A crucial insight, this visual combines job satisfaction levels with departmental attrition. It pinpoints departments where low satisfaction is a significant factor in turnover, allowing for focused interventions to improve workplace conditions.

IBM Employees Attrition Data Analysis

Internship Project
Unified Mentor Private Limited

Human Resources

Research & Development

Sales

Total Employees
1470

Attrition
237

No Attrition
1233

Total Income
8M

Average Salary Hike
15.21 %

Female

Male

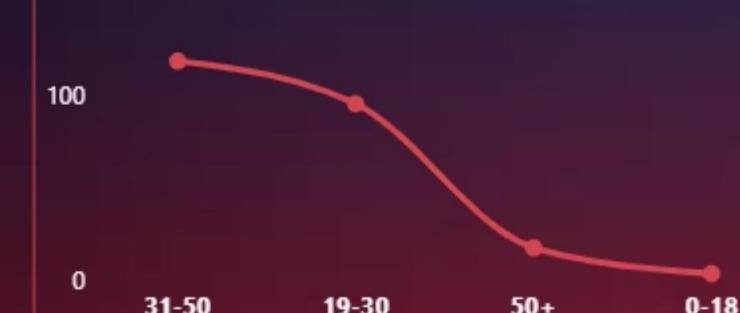
Job Satisfaction
2.47

Distance From Home
2.47

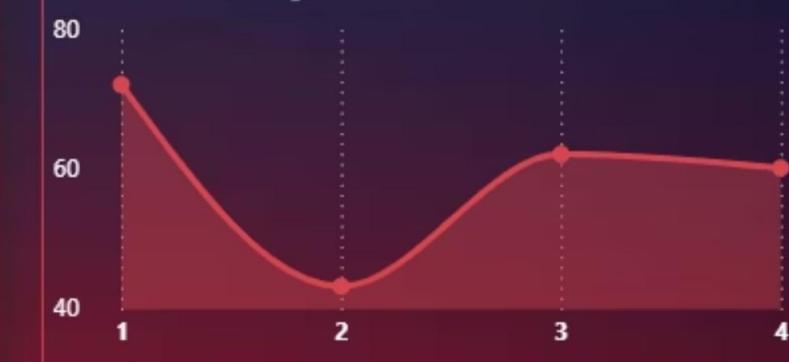
JobRole

Healthcare Representati...

Attrition by Age_Group



Attrition by Environment Satisfaction



YearsAtCompany	Emp_Attrition
0	16
1	59
2	27
3	20
4	19
5	21
6	9
Total	237

Overtime

Yes

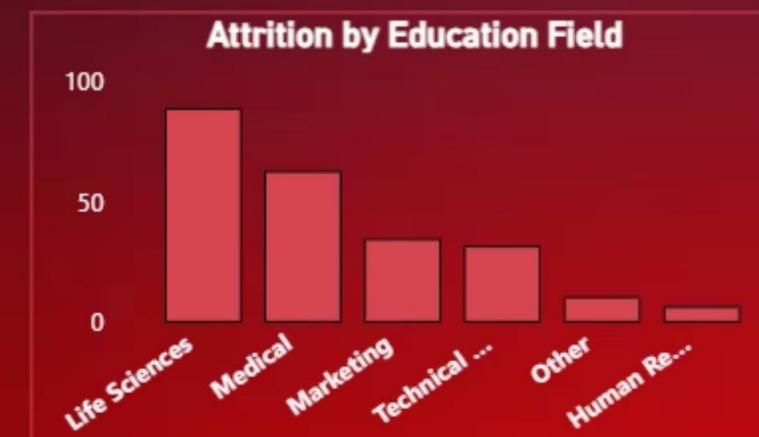
BusinessTravel

Travel_Frequently

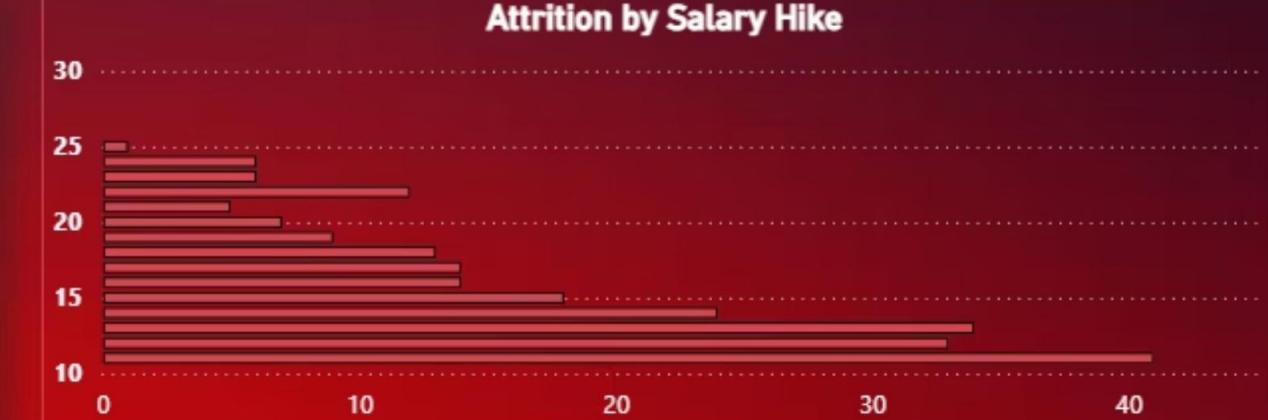
MaritalStatus

Single

Attrition by Education Field



Attrition by Salary Hike



Strategic Interventions: Business Recommendations for Retention

Based on the robust data analysis and insights gleaned from the IBM attrition project, we have formulated a series of targeted business recommendations. These suggestions are designed to address the identified attrition drivers directly, offering practical and implementable solutions for HR leaders and data-driven managers. The aim is to create a more supportive, engaging, and equitable work environment that fosters long-term employee loyalty and reduces costly turnover.

Business Recommendations

→ Career Milestone Retention Plans

Implement structured career development programmes and mentorship initiatives specifically for employees in early and mid-career stages. This includes clear promotion pathways, skill development opportunities, and regular performance feedback to ensure employees feel valued and see a future within the company.

→ Overtime Management in R&D

Conduct an in-depth review of workload distribution and project management practices within the R&D department. Introduce policies to limit excessive overtime, promote work-life balance, and ensure adequate staffing. Consider implementing flexible work arrangements to alleviate pressure and reduce burnout among R&D personnel.

→ Salary Hike Optimisation

Re-evaluate the salary hike structure and its correlation with job performance, market rates, and employee retention. Ensure that compensation adjustments are perceived as fair, transparent, and competitive, particularly for high-performing individuals and those in critical roles, to prevent financial dissatisfaction leading to attrition.

→ Engagement Programmes for Singles

Develop specific engagement and support programmes tailored for single employees. This could include fostering social networks within the company, providing access to wellbeing resources that address individual needs, or creating opportunities for community involvement, ensuring all employees feel connected and supported regardless of their marital status.

Implementing these recommendations will not only mitigate attrition but also contribute to a healthier, more productive, and satisfied workforce at IBM.