Business Recommendation Report

HR Analytics: Employee Attrition & Performance

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EXECUTIVE SUMMARY

This report presents findings from an HR dataset focused on employee attrition and performance patterns. The analysis was conducted to identify key drivers of attrition and offer data-backed strategies to improve employee retention and overall organizational efficiency.

OBJECTIVES

- Understand factors leading to employee attrition
- Identify performance-related insights
- Recommend actionable strategies to reduce attrition and boost productivity

DATASET OVERVIEW

- **Records**: 1,470 employees
- **Fields**: 35 variables including demographics, job roles, satisfaction levels, income, performance ratings
- **Source**: IBM HR Analytics Employee Attrition dataset

Key Insights from Data Exploration & Modeling *Link*

- **Attrition Trends**
  - **Attrition Rate:** ~16.1% of employees left the company.
  - **Job Roles Affected:** Sales Executive and Laboratory Technician roles showed higher attrition.
  - **Age Factor:** Employees aged 26–35 exhibited higher attrition, likely due to career transitions.

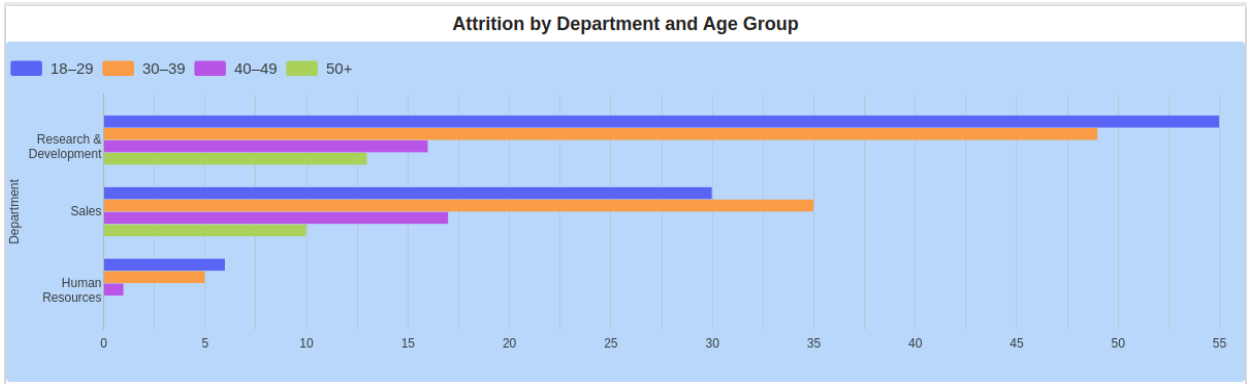
- **Key Drivers of Attrition (Based on ML Model Feature Importance)**

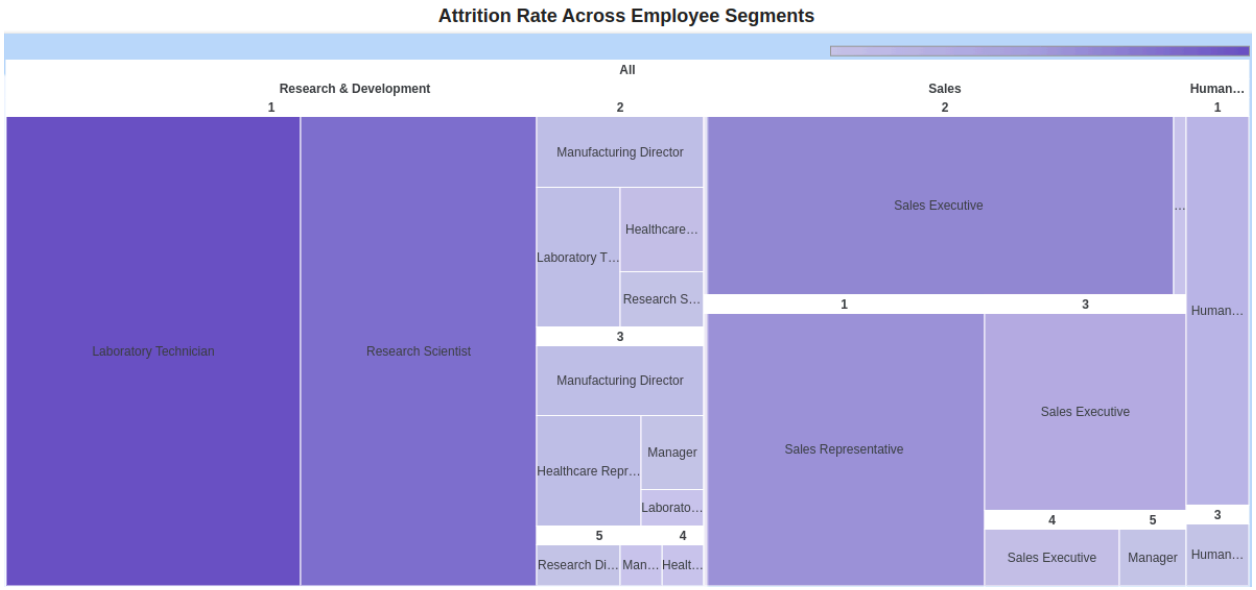
- **OverTime:** Employees working overtime are significantly more likely to leave.
- **Job Satisfaction:** Low job satisfaction strongly correlates with higher attrition.
- **Environment Satisfaction & Work-Life Balance:** Poor scores here are linked to disengagement.
- **Monthly Income:** Lower-income employees showed higher attrition tendencies.

🔹 **Performance and Engagement**

- **Training Time:** Employees with fewer training hours tend to perform worse.
- **Years at Company:** Long-term employees showed better performance but were not always rewarded.
- **Performance Rating:** High performers are not necessarily retained better—this may indicate lack of recognition or growth opportunities.

VISUAL INSIGHTS HIGHLIGHTS *LookerLink*





Machine Learning Results

- **Model Used:** Random Forest Classifier
- **Accuracy:** ~86%
- **Precision (Attrition class):** High enough to use for targeted HR interventions
- **Top Predictors:** OverTime, JobSatisfaction, EnvironmentSatisfaction, MonthlyIncome

Limitations

While Random Forest shows strong accuracy, it's limited in explaining interactions. Further testing with SHAP values or logistic regression could enhance transparency.

RECOMMENDATIONS

Policy and Cultural Interventions

- **Limit Excessive Overtime:** Promote a healthier work-life balance; monitor managers pushing teams too hard.
- **Flexible Work Options:** Especially for high-risk age groups (26–35), consider hybrid or remote models.

Compensation and Benefits

- **Review Salary Bands:** Especially for roles with high attrition like Sales and Lab Techs.
- **Incentive Programs:** Tie recognition and rewards to both performance and retention.

Employee Engagement

- **Conduct Regular Surveys:** Act on job satisfaction, environment, and work-life balance feedback.
- **Internal Growth:** Offer clear career paths, mentorship, and lateral opportunities.

Learning and Development

- **Upskill Programs:** Tailored training modules can improve performance and retention.
- **Track Training ROI:** Ensure performance and promotion correlate with learning hours.

HR KPI Summary Table

Metric	Value
Total Employees	1,470
Attrition Rate	16.1%
Avg Monthly Income	₹6.5L
Overtime Workers (%)	28%
Avg Job Satisfaction Score	2.7 / 4
Model Accuracy	86%

CONCLUSION

This analysis reveals that attrition is not random, it is driven by a mix of job satisfaction, work conditions, compensation, and career support. A proactive, data-informed HR strategy can reduce turnover, especially in at-risk roles, while enhancing the workplace experience and performance culture.