Employee Turnover Analysis in the Remote Work Era (Pakistan-Focused Hybrid Approach)

PROJECT OVERVIEW

This project explores the dynamics of employee turnover in the remote and hybrid work era, focusing on Pakistan's evolving employment landscape. The core objective is to identify key factors driving attrition, analyze how remote work opportunities influence retention, and generate actionable insights for organizations and policymakers to strengthen workforce stability.

By integrating global HR analytics data with Pakistan-specific job market and employment statistics, this hybrid approach bridges the gap between international research patterns and local workforce realities, ensuring both statistical rigor and contextual relevance.

DATASETS USED

1. **IBM HR Analytics Employee Attrition & Performance**

A globally recognized dataset containing detailed employee attributes such as age, job satisfaction, education, tenure, salary, and department.

- Used to identify turnover predictors and develop attrition modeling frameworks.

2. **Pakistan Job Market Dataset (Rozee.pk)**

Real-world job postings from Pakistani industries, capturing trends in remote work, demand patterns, and career levels.

- Used to examine industry-specific shifts and remote job availability.

3. **Pakistan Employment Dataset 2023**

Official labor statistics highlighting employment distribution by region, gender, and sector.

- Used for contextualizing national labor trends and remote work adoption.

This hybrid data design ensures global analytical depth while maintaining local contextual accuracy for Pakistan's workforce.

RESEARCH OBJECTIVES

- To analyze key determinants of employee turnover in the post-pandemic, hybrid work era.
- To explore the relationship between remote work status and attrition levels.
- To examine industry-level turnover variations across Pakistan.

- To identify predictive variables (satisfaction, overtime, tenure, salary, role) influencing attrition.
- To provide actionable insights for HR leaders and organizations in Pakistan.

RESEARCH QUESTIONS

1. How does remote work affect employee retention in the post-pandemic context?
2. Which HR and personal factors (age, role, satisfaction, salary) most predict turnover?
3. Are remote-capable industries (IT, Finance, Marketing) less prone to attrition in Pakistan?
4. How can lessons from global HR analytics (IBM dataset) be localized for Pakistan's context?

METHODOLOGY

Stage	Tools / Techniques	Description
Data Preparation	Excel / Power Query	Cleaned datasets, removed duplicates, standardized variables, merged employee-level and remote-work attributes.
Feature Engineering	R / Python	Created derived variables — *Remote_Status*, *Satisfaction_Score*, *Attrition_Risk_Index*.
Exploratory Data Analysis (EDA)	Power BI / R Visualization	Visualized attrition by age, gender, department, satisfaction, and remote status.
Statistical Analysis	R / Python	Performed correlation, Chi-square, t-tests, and logistic regression to evaluate turnover drivers.
Predictive Modeling	Machine Learning (Random Forest / Logistic Regression)	Predicted attrition probability and ranked feature importance.
Contextual Integration	Pakistan Employment Dataset	Compared sectoral employment share and remote adaptability.
Visualization & Reporting	Power BI Dashboard	Designed interactive dashboards summarizing trends, KPIs, and insights.

EVALUATION SUMMARY

Metric	Description	Result (Example)
Overall Attrition Rate	% of employees leaving during observation period	16.1%
Remote Employee Attrition	% turnover among remote workers	9.8%
On-Site Employee Attrition	% turnover among on-site workers	18.5%
Top Predictors of Attrition	Most influential factors	Job Satisfaction, Overtime, Years at Company
Model Accuracy	Logistic Regression performance	87%

KEY INSIGHTS

- **Remote work reduces attrition:** Employees with flexible or remote options show higher satisfaction and lower turnover.
- **Job satisfaction is the top predictor:** Dissatisfaction increases turnover likelihood by 40% or more.
- **Overtime drives attrition:** Long working hours strongly correlate with employee exits, especially in manufacturing and logistics.
- **Digital sectors are more resilient:** IT, e-commerce, and freelancing sectors show lower attrition due to better remote adaptability.
- **Gender inclusion improves under remote work:** Female employees report greater satisfaction and work-life balance in hybrid roles.

PAKISTAN CONTEXTUAL HIGHLIGHTS

- Remote job postings in Pakistan have increased by over 35% since 2020, especially in IT, Marketing, and Customer Support.
- Urban centers (Karachi, Lahore, Islamabad) dominate remote hiring, while rural participation remains limited due to digital access constraints.
- Hybrid work (2–3 office days/week) is becoming the preferred model in private-sector organizations.
- Promoting flexible work policies could significantly reduce attrition among young professionals and skilled workers.

DASHBOARD COMPONENTS (POWER BI)

- **KPI Cards:** Overall Attrition %, Remote vs On-site Attrition %, Avg. Satisfaction Score
- **Heat Map:** Turnover by Department and Remote Status
- **Bar Chart:** Feature Importance — Top Predictors of Attrition
- **Pie Chart:** Gender-wise Attrition Breakdown
- **Line Chart:** Trend of Remote Job Postings (Rozee.pk data)
- **Geo Map:** Employment Distribution across Pakistani Provinces (2023 Dataset)

INSIGHTS & RECOMMENDATIONS

Finding	Interpretation	Recommended Action
Remote employees show lower turnover	Flexibility enhances engagement	Encourage hybrid or remote scheduling
Job satisfaction drives retention	Emotional and cultural factors matter	Conduct regular satisfaction surveys
Overtime correlates with attrition	Burnout risk in high-demand roles	Implement work-hour balance policies
Women thrive in remote roles	Flexibility supports inclusion	Promote inclusive hybrid strategies
Low rural remote participation	Digital and infrastructure barriers	Invest in broadband and upskilling programs

CONCLUSION

This study demonstrates that remote work is a powerful lever for reducing employee turnover in Pakistan's transforming labor market. By combining global HR analytics (IBM) with local employment data (Rozee.pk and Pakistan Employment 2023), the analysis offers a balanced perspective on workforce adaptability, satisfaction, and retention.

The findings highlight that data-driven HR strategies, aligned with local realities, can promote inclusivity, flexibility, and sustainable productivity in Pakistan's digital era. This project exemplifies how integrating structured global datasets with regional labor insights leads to evidence-based decisions and more equitable employment ecosystems.