Attrition Prevention Suggestions Based on HR Analytics

1. SUMMARY OF ANALYSIS:
• **Data Source:** WA_Fn-UseC_-HR-Employee-Attrition.csv
• **Tools Used:** Python (Pandas, Numpy, Matplotlib, Scikit-learn), Power BI
• **Objective**: Predict employee attrition and understand the key driving factors.

2. KEY FACTORS INFLUENCING ATTRITION:
• Job Satisfaction and Environment Satisfaction :

Dashboard Observation:

Employees with Job Satisfaction = 1 or 2 (Low) and Environment Satisfaction = 1 or 2 show the highest attrition rates.

Most retained employees have scores of 3 or 4 in both fields.

Conclusion:

Poor work culture, lack of recognition, and an uninspiring environment significantly drive employees to leave. A supportive, clean, and motivating work atmosphere is essential to improve retention.

• Monthly Income and Job Level:

Dashboard Observation:

Employees in Job Level 1 with Monthly Income below $3000 account for a large share of attrition cases.

Higher income and job levels show significantly lower attrition.

Conclusion:

Financial dissatisfaction and lack of career progression lead to frustration. Ensuring competitive salaries and growth opportunities is crucial for retaining early-career employees.

• Distance From Home and Work-Life Balance:

Dashboard Observation:

Attrition increases for employees with Distance From Home > 10 km.

Employees with Work-Life Balance rating = 1 (poor) show above-average attrition, especially in high-pressure departments.

Conclusion:

Long commutes and imbalanced workloads contribute to stress and burnout. Offering flexible work options (e.g., hybrid/remote) and improved time-off policies can help.

• Years at Company and Total Working Years:

Dashboard Observation:

Majority of attrition occurs in employees with < 3 Years at the Company.

Those with > 10 Total Working Years but < 2 Years at the Company show dissatisfaction, possibly due to unmet expectations or misaligned roles.

Conclusion:

New hires are at higher risk due to onboarding gaps or cultural mismatch. Veteran professionals may leave if the role lacks challenge or growth. Tailored engagement strategies are needed for both groups.

• OverTime and Business Travel:

Dashboard Observation:

Employees flagged with OverTime = Yes show almost double the attrition rate compared to those with no overtime.

Frequent Business Travelers, especially in junior positions, are more prone to leave.

Conclusion:

Excessive overtime and unmanaged travel result in fatigue and personal disruption. Encouraging work boundaries and compensating travel-related burdens are important to reduce turnover.

3. INSIGHTS FROM DATA:
• Employees with low job satisfaction and high overtime are more likely to leave.
• Attrition is higher among employees with shorter tenure and lower income levels.
• Specific departments and job roles (e.g., Sales, Research & Development) show higher attrition clusters.

4. STRATEGIES TO PREVENT ATTRITION:
• *Improve Work-Life Balance:* Introduce flexible working hours, remote or hybrid work options to help employees manage their personal and professional lives effectively. This reduces burnout and increases job satisfaction.

• *Recognize and Reward:* Create meaningful and timely recognition programs (bonuses, awards, public appreciation) to acknowledge employee contributions. Recognition boosts morale and reinforces a positive culture.

• *Career Growth Paths*: Design and communicate clear career progression and internal mobility opportunities. Employees are more likely to stay when they see long-term growth potential.

• *Salary Bench-marking*: Conduct regular market research to ensure employees are fairly compensated for their roles. Address salary gaps and offer timely increments to retain top talent.

• *Employee Engagement:* Regularly interact with employees through surveys, feedback sessions, and town halls. This promotes openness, trust, and ensures concerns are addressed before they escalate.

• *Reduce Burnout:* Monitor overtime trends and encourage employees to take regular breaks and paid time off. Allowing proper rest helps maintain productivity and well-being.

5. PRACTICAL HR RECOMMENDATIONS:

- **Use predictive modeling to proactively identify at-risk employees:**
  Leverage machine learning models trained on historical data to predict which employees are likely to leave. This allows HR to intervene before attrition occurs.

- **Build targeted retention programs (mentoring, internal transfers):**
  Design custom retention plans based on role, department, and tenure. Mentorship and internal mobility can help retain valuable employees.

- **Establish early intervention strategies with HR data triggers:**
  Set up automated alerts when key risk indicators (e.g., low satisfaction, increased absenteeism) are detected. These allow HR to act quickly and support the employee.

- **Tailor HR policies department-wise using Power BI insights:**
  Use visual analytics to understand department-level attrition patterns. Customizing policies per team or function ensures relevance and impact.