BILIV-AUGMENTA EMPLOYEE ATTRITION PROJECT

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INTRODUCTION

PROJECT OBJECTIVE

To analyze employee attrition at Biliv-Augmenta and identify key turnover factors to support targeted retention strategies. This analysis helps Biliv-Augmenta reduce turnover costs, improve employee satisfaction, and strengthen workforce stability for long-term growth.

SCOPE

The dashboard analyzes employee attrition at Biliv-Augmenta across key areas, including demographics, departmental distribution, job satisfaction, and various factors influencing turnover, such as overtime, business travel, and promotion history.

Key Deliverables:

1. Identification of high-risk groups with higher attrition rates.

2. Insights into employee satisfaction to guide retention efforts.

3. Analysis of work conditions impacting attrition.

4. Actionable recommendations to improve retention strategies.

CHAPTER 4

DATA PREPARATION

DATA CLEANING

To ensure data accuracy and readiness for analysis, several data cleaning steps were taken. Key procedures include:

Standardizing Data Formats:

- **Date Formatting:** All dates (e.g., hire dates, review dates) were converted to a consistent format (DD/MM/YYYY) for ease of analysis and to avoid discrepancies.

- **Categorical Variables:** Categories such as department names, job roles, and marital statuses were standardized to maintain uniform labels (e.g., "Single" and "Divorced" for marital status).

Outlier Detection and Handling:

- **Salary and Age Outliers:** Extreme values in fields like salary and age were identified and reviewed. Unusual outliers were either validated (to ensure data accuracy) or corrected where errors were detected.

Through these cleaning steps, the dataset was refined to ensure it was complete, accurate, and ready for generating meaningful insights in the Power BI dashboard.

DATA PREPARATION

1. **Metric Aggregation:** Calculated attrition rates and grouped data by year for trend analysis.

2. **Categorical Binning:** Organized ages, tenure, and commuting distances into defined categories.

3. **Calculated Fields:** Created fields for employee status and satisfaction averages for comparisons.

4. **Data Merging:** Linked tables from various sources to establish relationships in Power BI.

5. **Data Filtering:** Filtered inactive employees in views focused on the current workforce.

These steps prepared the data for clear, insightful visualizations in Power BI.

CHAPTER 5

DASHBOARD DESIGN AND FEATURES

DASHBOARD OVERVIEW

The employee attrition dashboard provides a comprehensive analysis of turnover trends at Biliv-Augmenta, aimed at uncovering the key factors contributing to employee attrition. By identifying patterns in demographic, job-related, and satisfaction data, the dashboard supports data-driven decisions to strengthen employee retention strategies and improve workforce stability.

Purpose: The primary goal of the dashboard is to give HR and management teams actionable insights into employee attrition, enabling them to pinpoint areas of concern and proactively address factors impacting turnover. It aids in identifying high-risk groups, understanding satisfaction levels, and evaluating the effects of work conditions on attrition.

Main Features:

1. **Attrition Overview:**

Key metrics such as total employees, active/inactive employees, and the attrition rate provide a snapshot of the company's workforce and turnover trends.

2. **Demographic Insights:**

Breakdown of employees by age group, marital status, ethnicity, and gender to assess attrition patterns across different demographic segments.

3. **Departmental and Job Role Analysis:**

Attrition rates by department and job role, highlighting areas with higher turnover and allowing targeted retention efforts.

4. **Employee Satisfaction and Work-Life Metrics:**

Visualizations of job satisfaction, work-life balance, and other satisfaction metrics over time, giving insights into employee well-being and potential factors impacting attrition.

5. **Work Conditions and Attrition Drivers:**

Analysis of factors such as overtime, business travel, and commuting distance, helping to understand how work conditions correlate with turnover.

6. **Annual and Trend Analysis:**

Yearly attrition trends and comparisons across departments or demographics, providing a longitudinal view of attrition and workforce changes.

Through these features, the dashboard serves as a strategic tool for enhancing employee retention by spotlighting trends and areas for improvement in the company's workforce management.

DASHBOARD VISUALIZATIONS OVERVIEW

1. **Attrition Rate Overview:**

Description: Displays key metrics, including total employees, active employees, inactive employees, and overall attrition rate.

Insight: Provides a snapshot of the current workforce composition and the percentage of employees leaving the company, establishing a high-level view of turnover.

2. **Total Employees Over Time by Year:**

Description: A line chart showing employee count changes over the years, segmented by those who left (attrition) and those still employed.

Insight: Highlights fluctuations in employee numbers over time, helping to identify years with higher attrition rates and workforce growth trends.

3. **Active Employees by Department:**

Description: A bar chart displaying the number of active employees in each department (Technology, Sales, Human Resources).

Insight: Shows department sizes and workforce distribution, indicating areas with larger teams or departments at potential risk for higher turnover.

4. **Active Employees by Department and Job Role:**

Description: A stacked bar chart categorizing active employees within each department by specific job roles (e.g., Software Engineer, Sales Executive).

Insight: Provides a deeper view of workforce distribution across roles, allowing stakeholders to spot job roles with high attrition rates and identify staffing gaps.

5. **Demographic Breakdown (Age Groups, Gender, Marital Status, Ethnicity):**

Description: Multiple charts provide demographic insights, including age groups, gender, marital status, and ethnicity, as well as average salary by ethnicity.

Insight: Reveals the demographic composition of employees and salary distribution, identifying groups potentially more susceptible to attrition based on age, gender, or marital status.

6. **Satisfaction Metrics Over Time (Job Satisfaction, Work-Life Balance, Environment Satisfaction):**

Description: Line charts showing satisfaction scores over the years for various metrics, such as job satisfaction, environment satisfaction, work-life balance, and manager rating.

Insight: Highlights trends in satisfaction, showing whether these metrics improve or decline over time, which may correlate with attrition rates and areas to improve for better retention.

7. **Attrition Rate by Department:**

Description: A bar chart displaying attrition rates for each department, comparing the likelihood of turnover across Technology, Sales, and Human Resources.

Insight: Allows for quick identification of departments with higher attrition, directing attention to areas where retention strategies may be needed most.

8. **Attrition by Work Conditions (Overtime, Business Travel, Distance from Home):**

Description: Visuals such as pie charts and bar charts break down attrition rates by work conditions, including overtime status, frequency of business travel, and distance from home.

Insight: Illustrates how specific work conditions influence attrition, showing, for example, if employees working overtime or with frequent travel are more prone to leaving.

9. **Attrition by Tenure (Years with Current Manager and Years Since Last Promotion):**

Description: Line charts show attrition rates relative to years with the current manager and time since the last promotion.

Insight: Identifies whether tenure or promotion history impacts attrition, indicating if employees with longer manager tenure or infrequent promotions are at a higher turnover risk.

10. **Annual Attrition Rate Trend:**

Description: A line chart showing the overall attrition rate by year.

Insight: Provides a longitudinal view of attrition trends, helping to identify whether turnover is increasing or decreasing over time and allowing for comparisons across different periods.

These visualizations together offer a well-rounded analysis of the factors influencing attrition at Biliv-Augmenta, presenting insights into both employee demographics and job-related factors that may contribute to turnover.

CHAPTER 6

KEY INSIGHTS

KEY INSIGHTS FROM THE EMPLOYEE ATTRITION DASHBOARD

1. **Overall Attrition Rate and Workforce Composition:**

Insight: With a high attrition rate, the company is experiencing significant turnover, which may affect productivity and institutional knowledge retention.

Implication: This high turnover rate necessitates a focused retention strategy to reduce replacement costs and support a stable workforce.

2. **Departmental Attrition Variability:**

Insight: Attrition rates differ notably across departments, with Sales and Human Resources showing higher turnover than Technology.

Implication: Departments with higher attrition, like Sales and Human Resources, might require targeted interventions, such as team-building efforts, job role adjustments, or enhanced professional development.

3. **Job Role-Specific Turnover Trends:**

Insight: Certain job roles within departments exhibit higher attrition. For instance, frontline positions such as Sales Representatives show higher turnover than senior or specialized roles.

Implication: For high-turnover roles, it may be beneficial to explore job design improvements, increased role support, or changes in compensation structures to increase job satisfaction and reduce attrition.

4. **Demographic Impact on Attrition:**

Age Groups: Younger employees (20-29) and those nearing retirement (50+) have higher attrition rates.

Implication: Younger employees may seek growth opportunities, while older employees may leave due to retirement. Career development initiatives aimed at younger staff and succession planning for older employees could address these trends.

Gender and Marital Status: Slight variations in attrition by gender and marital status exist, with single employees showing a somewhat higher turnover.

Implication: Tailored programs, such as work-life balance support or family-friendly benefits, could be beneficial in addressing demographic-related attrition factors.

5. **Work Conditions and Attrition Correlation:**

Overtime and Business Travel: Employees who work frequent overtime or travel frequently show a significantly higher attrition rate.

Implication: Excessive overtime and frequent travel may contribute to burnout. Implementing flexible work arrangements, reducing overtime hours, and offering support for travel-heavy roles could help mitigate attrition for these employees.

Commuting Distance: Higher attrition rates are observed among employees with long commutes.

Implication: Encouraging remote work options or considering office relocations closer to talent pools may help retain employees who face long commutes.

6. **Employee Satisfaction Metrics as Predictors of Attrition:**

Job and Environment Satisfaction: A steady decline in job and environment satisfaction aligns with rising attrition rates.

Implication: Improving job satisfaction and work environment could help in retention. Potential initiatives include improving manager-employee relationships, enhancing workspaces, or providing role-specific support resources.

Work-Life Balance: Attrition is higher among employees reporting poor work-life balance, underscoring the importance of this factor in employee retention.

Implication: Implementing policies that encourage work-life balance, such as flexible work schedules or remote work options, can help reduce turnover.

7. **Impact of Career Progression on Attrition:**

Years Since Last Promotion: Attrition tends to increase for employees with longer intervals since their last promotion.

Implication: Stagnation in career growth can lead to employee dissatisfaction. Offering clear career progression paths and regular promotions or skill-based pay increases could retain employees looking for growth.

Tenure with Current Manager: Higher attrition rates are observed among employees who have been with the same manager for extended periods, possibly due to a lack of diversity in management styles or advancement opportunities.

Implication: Rotational management structures, mentorship programs, and lateral movement opportunities might help in refreshing employee experiences and preventing stagnation.

8. **Annual Trends in Attrition:**

Insight: A steady or increasing attrition trend over recent years signals ongoing challenges in employee retention.

Implication: Monitoring and addressing the factors that drive this long-term trend are essential for Biliv-Augmenta. It may be necessary to continually update retention strategies based on employee feedback, especially as workplace expectations evolve.

SIGNIFICANT TRENDS OBSERVED IN EMPLOYEE ATTRITION DATA

1. **High Departmental Attrition:** Sales and Human Resources departments show higher attrition rates than Technology.

2. **Role-Specific Turnover:** Frontline roles, especially Sales Representatives, experience higher attrition compared to senior or specialized positions.

3. **Demographic-Driven Attrition:**

Younger employees (20-29) and those near retirement age (50+) have higher attrition rates.

Single employees show marginally higher turnover compared to other marital statuses.

4. **Work Conditions Impact:**

Employees working frequent overtime or traveling often for work have significantly higher attrition rates.

Longer commuting distances correlate with increased likelihood of turnover.

5. **Declining Satisfaction Trends:**

Job satisfaction, environment satisfaction, and work-life balance scores decline over time, corresponding with rising attrition.

6. **Career Progression and Tenure:**

Attrition increases among employees who have gone longer without a promotion.

Extended tenure with the same manager also correlates with higher turnover.

7. **Year-Over-Year Increase in Attrition:**

The annual attrition rate has shown a gradual upward trend in recent years.

CHAPTER 7

RECOMMENDATIONS

RECOMMENDED RETENTION STRATEGIES:

1. **Department-Specific Retention:** Focus on high-turnover departments like Sales and HR with targeted training and support.

2. **Support for High-Turnover Roles:** Provide additional resources and competitive compensation for frontline roles.

3. **Demographic-Tailored Benefits:** Offer growth opportunities for younger employees and transition support for older employees.

4. **Flexible Work and Reduced Overtime:** Implement remote work options and manage overtime to prevent burnout.

5. **Career Advancement Programs:** Establish clear promotion paths and skill-based pay to encourage career growth.

6. **Rotation and Mentorship:** Introduce rotational management and mentorship to keep long-tenured employees engaged.

7. **Employee Feedback Channels:** Conduct regular surveys to stay informed of employee needs.

8. **Monitor Attrition Trends:** Continuously track turnover to adapt retention strategies as needed.

These actions aim to improve satisfaction, reduce turnover, and strengthen workforce stability.

CHAPTER 8

CONCLUSION

SUMMARY OF KEY POINTS:

The employee attrition analysis dashboard for Biliv-Augmenta provides critical insights into turnover trends, enabling targeted retention strategies. Key findings include high attrition rates in departments like Sales and Human Resources, increased turnover among younger employees and those nearing retirement, and the impact of work conditions like overtime and commuting distance on attrition. Job satisfaction, career growth, and work-life balance emerged as essential factors influencing retention.

VALUE OF THE DASHBOARD:

This dashboard is a valuable tool for HR and management, offering a clear, data-driven understanding of employee attrition. It highlights high-risk groups, identifies the factors driving turnover, and supports proactive, strategic interventions. By improving data collection and expanding analysis, Biliv-Augmenta can further refine retention efforts, ultimately fostering a stable, engaged workforce and reducing turnover-related costs.