HUMAN RESOURCE
DATA ANALYTICS REPORT

by

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INTRODUCTION

The **HR Analytics Report** offers a detailed analysis of employee data spanning multiple departments and business units. Its primary goal is to enable data-driven HR decisions by providing insights into workforce demographics, job roles, job satisfaction, salary distribution, and other key performance metrics. This report is tailored to assist HR professionals and organizational leaders in understanding employee engagement levels, identifying performance trends, and pinpointing areas that require improvement within the workforce.

The intended audience for this report includes HR managers, department heads, and executive teams. It aims to equip them with actionable insights to inform strategic workforce planning, enhance employee retention strategies, and improve overall satisfaction levels within the organization.

Key objectives of the report include:

- **Understanding Workforce Demographics**: Analyze employee attributes such as age, gender, education, and department to map the organization's demographic profile.

- **Assessing Job Satisfaction and Performance**: Evaluate metrics like job satisfaction, environment satisfaction, and performance ratings to gauge employee morale and productivity.

- **Monitoring Work-Life Balance and Well-Being**: Track indicators such as overtime, distance from home, and work-life balance ratings to identify potential stressors or burnout risks.

- **Analyzing Career Progression**: Examine data on tenure, years in current roles, and time since the last promotion to gain insights into career growth opportunities and retention factors within the company.

DATA SOURCE

Source link:
https://docs.google.com/spreadsheets/d/10FBJQjzeA20ouqt2D6iDMkxCCePx27tw/edit?usp=drive_link&ouid=113659737301931548644&rtpof=true&sd=true

The dataset utilized is HR_Analytics.xlsx. It comprises a single table with 38 columns and 1481 rows. Key attributes in the dataset include Departments, Business Units, Hire Date, Employee Education, Job Satisfaction, Salary, Age, Gender, and other critical employee-related metrics.

DATA TRANSFORMATION (POWER QUERY)

The dataset was cleaned and transformed using Power Query to ensure it was properly structured for analysis. The following transformations were applied:

1. **Promoted Headers**:

   The first row, which contained column names, was promoted as headers to properly label the columns.

2. **Changed Data Types**:

   Standardized the data types for all columns:

   a. Numerical fields like *Age*, *DailyRate*, and *YearsAtCompany* were converted to integers.

   b. Textual fields like *EmpID* and *BusinessTravel* were converted to text format.

3. **Replaced Values in BusinessTravel**:

   Standardized the value "TravelRarely" to "Travel_Rarely" for consistency.

4. **Replaced Null Values in YearsWithCurrManager**:

   Replaced missing (null) values in the *YearsWithCurrManager* column with 0 to handle data gaps.

5. **Removed Duplicates**:

   Identified and removed duplicate rows based on the *EmpID* column to ensure each employee record was unique.

DAX MEASURES

DAX (Data Analysis Expressions) is a powerful formula language used in Power BI to analyze and manipulate data effectively. It enables users to perform calculations, create aggregations, and derive meaningful insights from datasets. For this analysis, several DAX measures were created to extract insights from the HR Analytics dataset, specifically focusing on employee attributes and organizational trends. The key DAX measures created include:

1. **Total Employee Count**:
   - This measure calculates the total number of employees in the dataset.
     - Formula: `Total Employee Count = COUNTROWS(HR_Analytics)`

2. **Attrition Count**:
   - This measure counts the total number of employees who have left the organization (Attrition = "Yes").
     - Formula: `Attrition Count = COUNTROWS(FILTER(HR_Analytics, HR_Analytics[Attrition] = "Yes"))`

3. **Attrition Rate**:
   - o This measure calculates the percentage of employees who have left the organization.
     - Formula: `Attrition Rate = DIVIDE(CALCULATE(COUNTROWS(HR_Analytics), HR_Analytics[Attrition]="Yes"), [Total Employee Count], 0)`

4. **Average Age**:
   - o Calculates the average age of employees in the organization.
     - Formula: `Avg_Age = AVERAGE(HR_Analytics[Age])`

5. **Average Salary**:
   - o Calculates the average monthly income of employees.
     - Formula: `Avg_Salary = AVERAGE(HR_Analytics[MonthlyIncome])`

6. **Average Years at Company**:
   - o Determines the average tenure of employees within the organization.
     - Formula: `Avg_years = AVERAGE(HR_Analytics[YearsAtCompany])`

DATA VISUALIZATIONS

The **HR Analytics Dashboard** provides an interactive and comprehensive view of key HR metrics, enabling data-driven decision-making. It visualizes essential data such as **attrition rate (16%)**, **average employee age (37 years)**, and **average salary (₹6.5K)**. Key charts include **attrition by education field**, **job satisfaction by role**, and **attrition by age and gender**. The dashboard also features slicers for dynamic filtering by department, travel frequency, marital status, and overtime. This tool supports HR professionals in analyzing workforce trends and improving employee engagement and retention.

DATA INSIGHTS

1. **Attrition Rate**:
   - Overall **16% attrition**, with **237 employees** leaving.
   - Highest attrition in **Life Sciences** education field.

2. **Employee Age**:
   - Average employee age is **37 years**.
   - High attrition in the **18-25 age group**, suggesting young employees are leaving more often.

3. **Gender**:
   - **60% male** and **40% female** employees in attrition.

4. **Job Satisfaction**:
   - **Sales Executives** and **Research Scientists** report the highest satisfaction.
   - **Human Resources** and **Research Directors** have lower satisfaction scores.
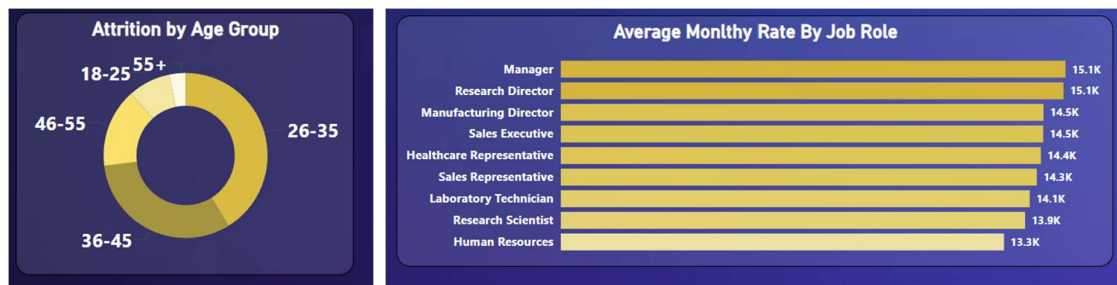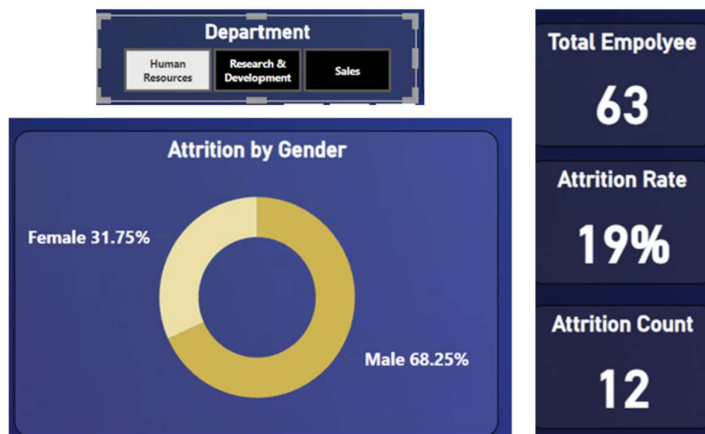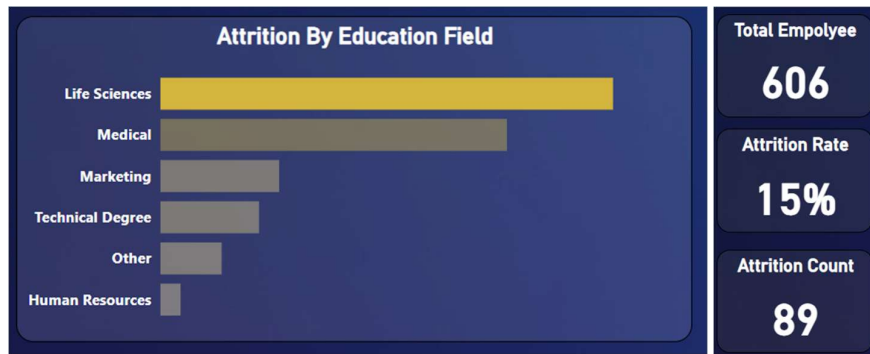
5. **Compensation**:
   - **Healthcare Representatives** earn the highest **hourly rate**.
   - **Average salary** is **₹6.5K**, with variations across departments.

6. **Work-Life Balance**:
   - Most employees rate their work-life balance as **3**, indicating moderate challenges.

7. **Tenure**:
   - Average tenure is **7 years**, with lower attrition among long-tenured employees.

Attrition By Education Field

Education Field	
Life Sciences	
Medical	
Marketing	
Technical Degree	
Other	
Human Resources	

Total Employee	606
Attrition Rate	15%
Attrition Count	89

Department
Human Resources | Research & Development | Sales

Attrition by Gender
Female 31.75%
Male 68.25%

Total Employee	63
Attrition Rate	19%
Attrition Count	12

Attrition by Age Group
18-25 55+
46-55
26-35
36-45

Average Monlthy Rate By Job Role

Job Role	Rate
Manager	15.1K
Research Director	15.1K
Manufacturing Director	14.5K
Sales Executive	14.5K
Healthcare Representative	14.4K
Sales Representative	14.3K
Laboratory Technician	14.1K
Research Scientist	13.9K
Human Resources	13.3K

SUGGESTIONS:

1. Older employees with higher salaries **(> ₹15K)** have lower attrition rates, indicating better retention among experienced staff.
2. Employees with higher job satisfaction, particularly **Sales Executives**, have lower attrition, suggesting job satisfaction is crucial for **retention**.
3. **Managers** and **senior employees** with high job involvement report better work-life balance, indicating responsibility and flexibility contribute to **balance**.
4. **Younger employees** with a Bachelor's in Medical or Life Sciences show **higher attrition**, indicating the need for targeted retention strategies.
5. **Higher job satisfaction** correlates with better compensation, especially in roles like **Sales Executive.**

6. Employees with **7+** years of tenure and salaries between ₹10K-15K tend to perform better, indicating longer-tenured employees are **more engaged**.
7. Higher job involvement in roles like **Healthcare Representative** boosts job satisfaction and **retention**.
8. **Mid-career** employees (36-45) with medium work-life balance scores have **higher attrition**, suggesting more support is needed.
9. Employees with **low travel frequency** and higher salaries (> ₹15K) show **higher tenure** and performance.
10. **Senior employees** with low job involvement (e.g., Manufacturing Directors) exhibit lower attrition, implying **less dissatisfaction** in senior roles.
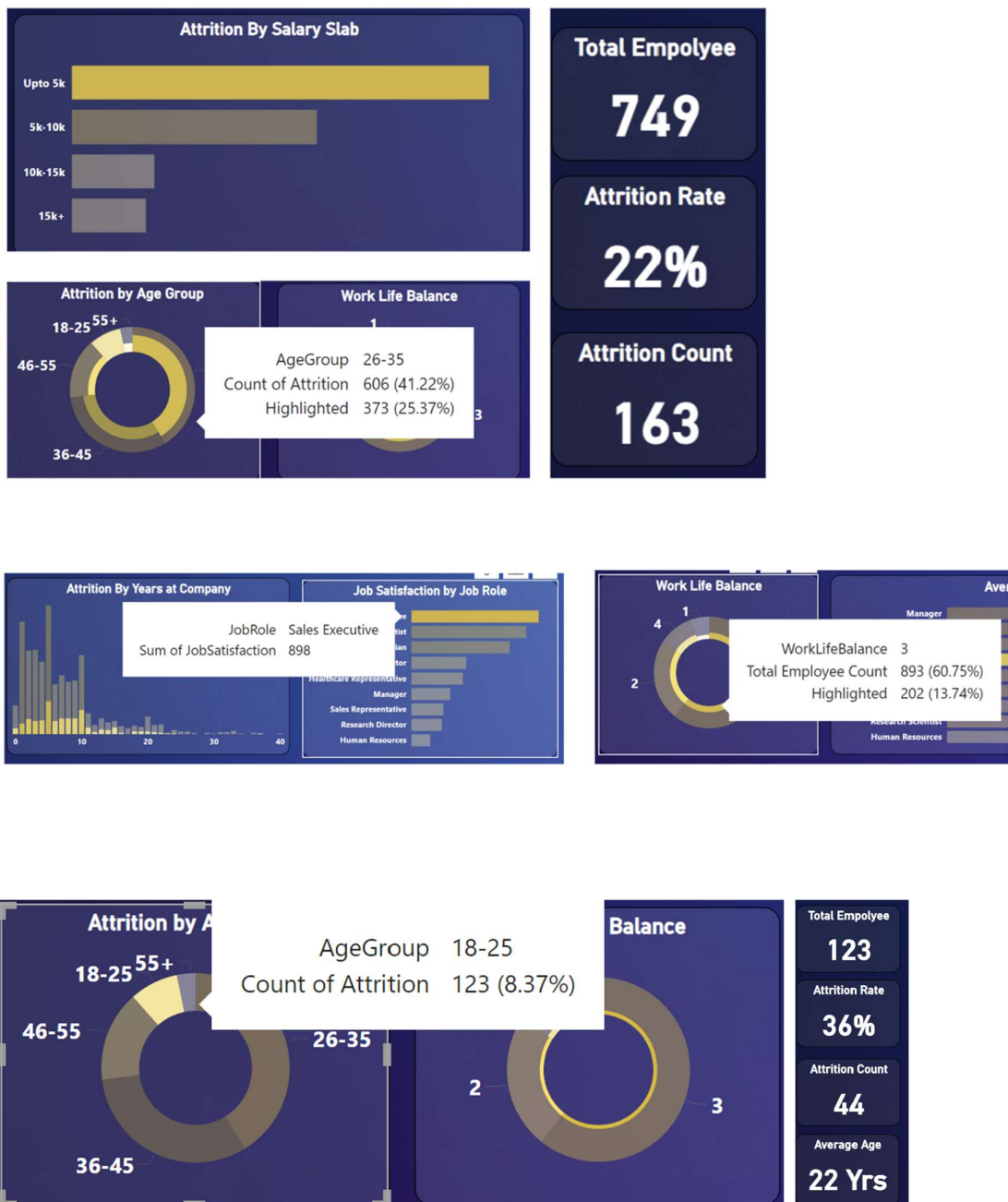
<u>Some Key Comparisons</u>

1. Attrition Rate vs. Job Satisfaction by Job Role

- **Sales Executive** and **Sales Representative** have high job satisfaction and low attrition, indicating a positive work environment.

- **Research Director** and **Manager** roles show moderate satisfaction but higher attrition, suggesting a disconnect between expectations and job satisfaction.

2. Attrition by Age Group vs. Average Monthly Salary by Job Role

- **Younger employees (18-25)** have higher attrition and lower salaries, especially in **Sales** and **Customer Service** roles.

- **Older employees (46-55+)** with higher salaries have significantly lower attrition, indicating compensation may be a key retention factor.

3. Work-Life Balance vs. Average Salary by Job Role

- **Healthcare Representative** and **Laboratory Technician** roles have good work-life balance but lower salaries.

- **Managers** and **Manufacturing Directors** enjoy both high salaries and good work-life balance, showing higher roles correlate with better work-life control.

4. Gender Distribution vs. Attrition by Education Field

- **Males** (60%) have higher attrition compared to females (40%), especially in **Sales** and **Research**.

- **Life Sciences** employees have the lowest attrition and a balanced gender distribution, unlike fields like **Marketing** and **Human Resources**.

5. Years at Company vs. Average Hourly Rate by Job Role

- Employees with **longer tenure** (7+ years) in **Manager** and **Research Scientist** roles have higher hourly rates.

- **Newer employees** in **Laboratory Technician** and **Sales Representative** roles earn less, which may contribute to higher attrition in these positions.