

DESCRIPTION

HR Attrition Data Analysis

*A project report for
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Initiated By Globsyn*

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Scenario:

The dataset "HR Employee - Attrition" has been analyzed to understand the factors affecting employee attrition. We aim to clean, model, and interpret the data to draw valuable insights that will help improve employee retention strategies.

Introduction:

In today’s competitive business environment, human resources are one of the most valuable assets of any organization. Managing this asset effectively is crucial for sustainable growth and development. HR Attrition data analysis helps organizations gain deeper insights into workforce dynamics, and attrition analysis is one of the most critical aspects of this process. High attrition rates can lead to increased recruitment costs, loss of expertise, and decreased productivity. Therefore, understanding why employees leave and how to reduce attrition is key to maintaining a stable and motivated workforce.

This report presents an analysis of HR Employee - Attrition, with a focus on attrition trends. By examining factors such as job role, department, age group, and educational background, this analysis aims to provide actionable insights and recommendations for improving employee retention and satisfaction.

Data Description:

- Title of the table - " HR Employee - Attrition "
- Data Set

HR-Employee-Attrition.csv (227.98 kB)							⬇ ⌂ >
Detail	Compact	Column	10 of 35 columns ▾				
# Age	✓ Attrition	Δ BusinessT...	# DailyRate	Δ Department	# DistanceF...	# Education	
41	Yes	Travel_Rarely	1102	Sales	1	2	
49	No	Travel_Frequently	279	Research & Development	8	1	
37	Yes	Travel_Rarely	1373	Research & Development	2	2	
33	No	Travel_Frequently	1392	Research & Development	3	4	
27	No	Travel_Rarely	591	Research & Development	2	1	

- The following are the tasks need to be performed:

- **Data Connection:** Connected to the dataset from an Excel file named “HR Employee - Attrition”.

- **Data Cleaning:**

The data cleaning process involved using Power Query Editor to remove duplicates, correct inconsistencies, and handle missing data. Cleaning the dataset is critical for ensuring the accuracy and reliability of the analysis.

- **Data Modelling:**

Data modelling was done to establish relationships between various columns like Attrition Count, Department, Age Band, Employee Count, Job Role, and Educational Field. This step allowed us to gain a deeper understanding of how these variables influence each other.

- **Department-wise Attrition Analysis:**

One of the most insightful aspects of this analysis was the department-wise breakdown of attrition rates. Departments like Research & Development (R&D) and Sales had notably high attrition rates. In R&D, the specialized nature of the work coupled with high market demand for technical talent often leads to higher turnover.

- **Educational Field Analysis:**

Educational background is a significant factor influencing attrition. Our analysis revealed that employees from fields like Life Sciences and Medical experience higher attrition rates. This may be because these fields are highly competitive, with professionals constantly seeking better opportunities, higher salaries, or further education.

- **Employee Count Analysis:**

_Compared total and present employee counts to understand attrition more effectively. Younger employees tend to have fewer personal responsibilities compared to older employees, making them more mobile and open to job changes. However, this trend also underscores the need for organizations to offer clear career progression.

➤ **KPI Cards:**

Displayed key metrics including "Total Employees," "Attrition," "Attrition Rate," "Present Employees," and "Average Employee Age."

- ❖ **Total Employees:** Represents the overall workforce.
- ❖ **Attrition:** The number of employees who have left the organization.
- ❖ **Attrition Rate:** Calculated by dividing the number of attritions by the total number of employees.
- ❖ **Present Employees:** Calculated by subtracting the number of attritions from the total number of employees.
- ❖ **Average Employee Age:** A measure to understand the age distribution of the workforce.

➤ **Navigation Bar:**

Demonstrated the impact of various Educational Fields on job roles.

➤ **Job Role Performance Table:**

The analysis also indicated that certain job roles had distinct attrition patterns. For instance, technical roles in the R&D department showed higher attrition compared to administrative or support roles. This is likely due to the high demand for skilled technical professionals, which makes it easier for them to secure alternative employment.

➤ **Pie Chart:**

Illustrated department-wise attrition across different scenarios.

➤ **Stacked Column Chart:**

Visualized attrition numbers across various age groups.

➤ **Stacked Bar Chart:**

Showcased the impact of attrition on different educational fields.

Measures Taken:

- **Attrition Rate:-** This measure was a significant data for our observation. It which helped us to know the exact count of attritted employee according the job role and education field. We calculated the measure with the help of 'sum of attrition count' and 'sum of employee count'.

➤ Attrition Rate=Sum of Employee Count/Sum of Attrition Count

```
1 Attriton Rate = SUM('HR data'[Attrition count])/SUM('HR data'[Employee Count])
```

- **Present Employee:-** Total count of the present employee is an another important data for our observation which helped us to know the exact count of employee according the job role and education field. It helps to compare the total attrition of that particular condition. we calculated the measure with the help of 'sum of employee count' and 'sum of attrition count'.

```
1 Present Employee = SUM('HR data'[Employee Count])-SUM('HR data'[Attrition count])
```

➤ Present Employees=Sum of Employee Count–Sum of Attrition Count.

Observation:

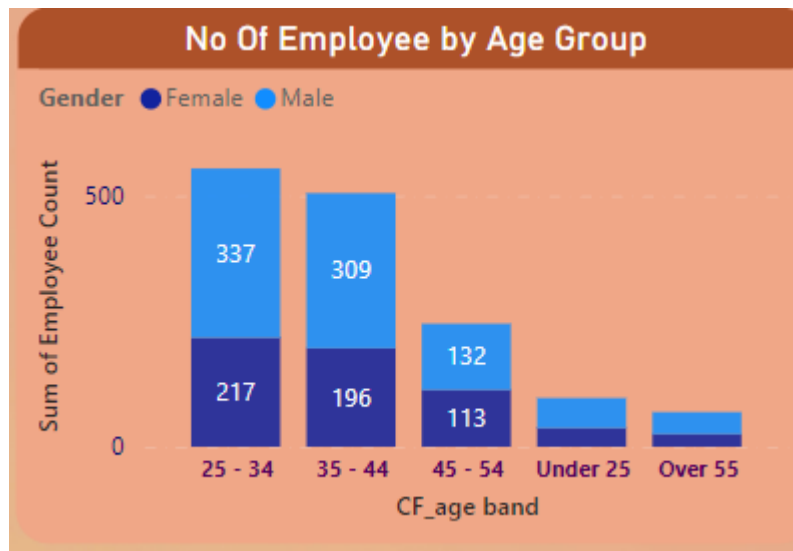
The analysis of the HR dataset provided several critical insights into the organization's workforce dynamics, particularly concerning attrition trends across various segments. Key observations are as follows:

➤ Overall Attrition Trends:

The data revealed an overall attrition rate of 16.12%, which is higher than desirable for maintaining a stable workforce. This suggests underlying issues that need to be addressed to improve employee retention

➤ Age Group Analysis:

A significant finding is the high attrition rate within the "Under 25" age group, which accounts for 70% of the total attrition. This age group typically includes early-career professionals who may be seeking career growth and stability. The high turnover in this segment could indicate dissatisfaction with career development opportunities, work-life balance, or compensation.



➤ Department-Wise Attrition:

The data indicated varying attrition rates across different departments. For instance, the Research & Development (R&D) and Sales departments experienced notable attrition rates, suggesting potential issues such as work pressure, lack of growth opportunities, or mismatches in job expectations. The attrition in healthcare-related roles was also higher than expected, indicating potential stress factors unique to this sector.

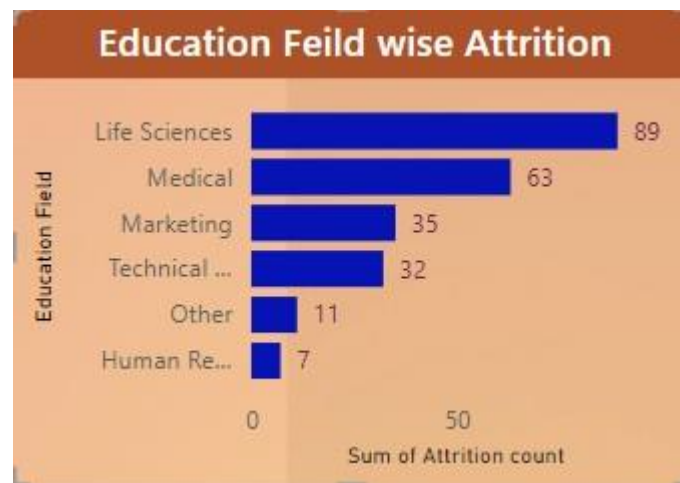


➤ **Job Role Specific Insights:**

Specific job roles exhibited distinct attrition patterns. For example, technical roles in R&D showed higher attrition compared to administrative or support roles. This could be due to high demand for skilled technical professionals in the market, making it easier for them to find alternative employment. Moreover, job roles with lower job satisfaction scores were more prone to higher attrition rates.

➤ **Educational Field Influence:**

The analysis revealed that employees from certain educational fields, such as Life Sciences and Medical, had higher attrition rates. This might be due to the competitive nature of these fields, where professionals often seek better opportunities or further education. In contrast, fields like Marketing and Business saw relatively lower attrition, suggesting a more stable job environment or better job satisfaction.



Recommendations:

Given the findings from the analysis, several strategies can be implemented to address the high attrition rate and improve employee retention:

❖ **Enhance Career Development Opportunities**

To reduce attrition among early-career employees, the organization should invest in career development programs:

1. **Skill Development Programs-** Implement training programs that allow employees to upskill and prepare for advanced roles within the company. This can help reduce attrition in the "under 25" age group.
2. **Clear Career Pathways-** Provide clear and transparent career progression pathways, which can help align employee aspirations with organizational goals.

❖ Improve Work-Life Balance

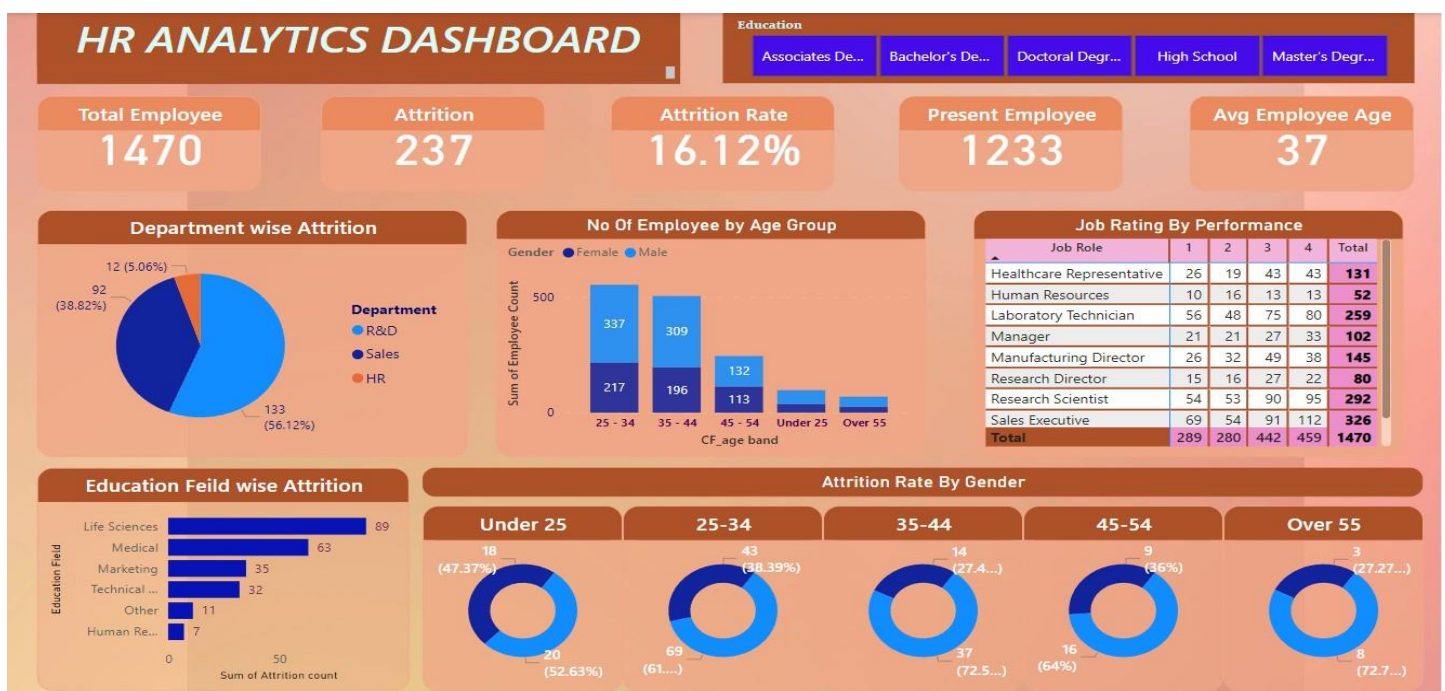
A significant contributor to attrition, especially in the Sales department, is the imbalance between work and life. Addressing this can greatly improve employee retention:

1. **Flexible Work Arrangements-** Offering flexible working hours or remote work options can help employees manage work-related stress.
2. **Workload Management-** Effective workload distribution and resource allocation can prevent employee burnout, particularly in high-pressure roles like Sales.

❖ Foster a Positive Workplace Culture

Creating an inclusive and supportive work environment is crucial for employee satisfaction:

1. **Employee Engagement Programs-**Introducing team-building activities and recognition programs can boost morale.
2. **Open Communication-** Encouraging open communication between employees and management can help address grievances before they lead to attrition.



Enhance Career Development Opportunities:

- **Skill Development Programs:** Establish robust training and development programs to help employees enhance their skills and prepare for advanced roles within the company. This is particularly crucial for the "Under 25" age group, who may be seeking career advancement.
- **Clear Career Pathways:** Provide clear career progression pathways and communicate these opportunities transparently to employees. Offering regular career planning sessions can help align employee aspirations with organizational goals.

Improve Work-Life Balance:

- **Flexible Work Arrangements:** Introduce flexible working hours, remote work options, and other policies that support a better work-life balance. This can help reduce burnout and improve job satisfaction, particularly among employees who frequently work overtime.
- **Workload Management:** Implement strategies to manage workloads effectively, ensuring that employees are not overwhelmed. This can include better resource allocation and hiring additional staff to share the workload.

Address Workplace Environment and Culture:

- **Promote a Positive Workplace Culture:** Foster an inclusive and positive workplace culture that encourages collaboration and open communication. Addressing issues like internal office politics can significantly improve employee morale and reduce attrition.
- **Employee Engagement Programs:** Launch initiatives to boost employee engagement, such as team-building activities, recognition programs, and regular feedback mechanisms. Engaged employees are more likely to feel valued and committed to the organization.

Conclusion:

In conclusion, the analysis of the HR dataset revealed several critical insights regarding employee attrition across different segments of the workforce. The high attrition rate, especially within the "Under 25" age group, highlights the need for improved career development opportunities. Furthermore, disparities in attrition rates across departments and educational backgrounds point to specific areas where targeted interventions can significantly improve employee retention.

By implementing the recommendations outlined in this report, the organization can enhance employee satisfaction, reduce attrition, and foster a more stable and productive workforce.