

## Project Title:

## HR Analytics Dashboard Using Power BI

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### About the Project:

This HR Analytics Dashboard is designed to provide comprehensive insights into employee attrition patterns within an organization. By leveraging Power BI for data visualization, it enables HR managers and decision-makers to analyze key factors influencing employee turnover, including demographic trends, job satisfaction, and business travel patterns. The dashboard uses an HR dataset containing attributes such as employee demographics, job roles, marital status, years of service, and education levels.

The primary goal is to offer actionable insights to optimize workforce management and reduce attrition.

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### Technologies Used:

1. **Excel:** Used for initial data cleaning and preparation.
  2. **Power BI:** Used to create interactive visualizations and dashboards.
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### Steps Overview:

1. **Data Collection:** The dataset includes multiple employee-related attributes, such as age, gender, education, monthly income, job satisfaction, and attrition rates.
  2. **Data Understanding:** The data was analyzed to identify key metrics for visual representation.
  3. **Data Transformation:** Columns like age were transformed into grouped categories for easier analysis.
  4. **Data Visualization:** Power BI was used to create an interactive dashboard that includes charts, graphs, and key performance indicators (KPIs).
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### Dashboard Overview:

The dashboard is divided into two primary pages, each focusing on different aspects of employee data.

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## HR\_ANALYTICS [Workforce Demographics & Diversity]

Overall Employees

15000

Turnover percentage

19.69%

Average Age

40.95

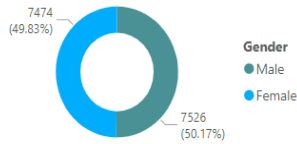
Average Salary

80.16K

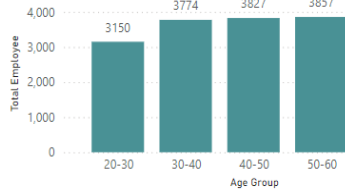
Year Of The Company

8

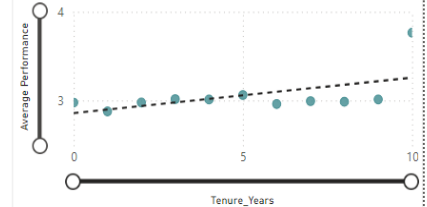
### Gender



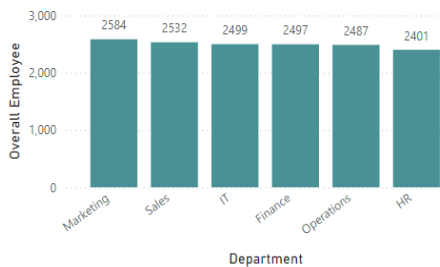
### Age Distribution



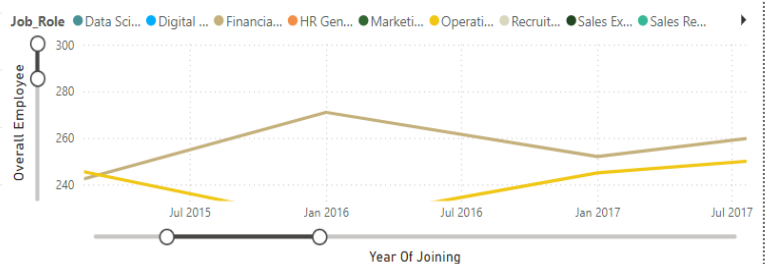
### Tenure Impact on Performance



### Employees per Department



### Joining Trend By Roles



## HR Analytics [Skills, Training, and Development]

Total Training Hour

412K

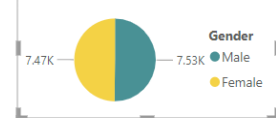
Invested Training Hour

27.49

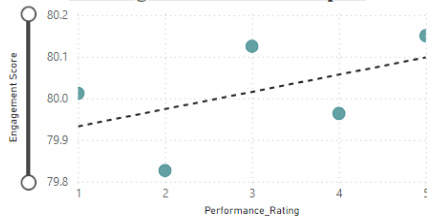
Training Needed

50.51%

### Gender



### Training vs. Performance Impact



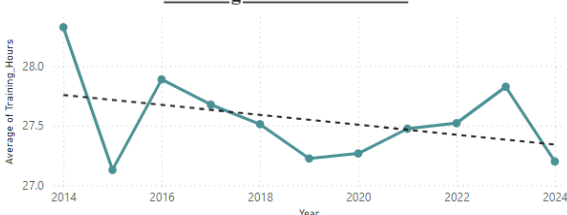
### Performance vs. Training Hours



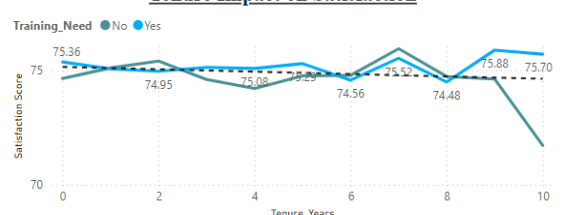
### Skill Gap



### Training Trends Over Time



### Tenure Impact on Satisfaction



## Page 1 - Workforce Demographics and Diversity:

### 1. Overall Metrics Summary

- **Overall Employees:** 15,000 employees in total.
  - **Turnover Percentage:** 19.69% of the workforce has left the company, indicating employee retention challenges.
  - **Average Age:** The workforce has an average age of 40.95 years, reflecting a mature employee base.
  - **Average Salary:** \$80.16K average salary, indicating a relatively competitive pay structure.
  - **Year of the Company:** The company has been operational for 8 years.
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### 2. Gender Distribution

- **Males:** 7,474 (49.83%)
  - **Females:** 7,526 (50.17%)
  - The company has a near-even gender balance, which is positive for diversity and inclusion efforts.
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### 3. Age Distribution

- Largest age groups:
    - **40-50:** 3,827 employees
    - **50-60:** 3,857 employees
  - **20-30:** 3,150 employees
  - **60+:** 392 employees
  - The majority of employees are in the 40-60 age range, indicating a significant portion of experienced professionals.
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### 4. Employees per Department

- **Top Departments by Employee Count:**
    - Marketing: 2,584 employees
    - Sales: 2,532 employees
    - IT: 2,499 employees
  - All departments have a balanced distribution between 2,400 and 2,584 employees, showing a well-distributed workforce across functions.
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### 5. Tenure Impact on Performance

- There is a positive correlation between tenure and performance, where longer tenure results in slightly higher average performance. This trend suggests experienced employees contribute more effectively over time.
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## 6. Joining Trend by Roles

- The line chart shows the hiring trend over time by different roles:
  - Notable increase from mid-2015 to early 2017.
  - Fluctuations are visible in specific roles, like Sales and Marketing, with higher hiring trends from mid-2016 to early 2017.
- Consistent hiring indicates steady organizational growth.

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## Recommendations

- **Retention Strategies:** Focus on reducing the turnover rate with engagement programs and career development.
- **Succession Planning:** With a high number of employees in the 40-60 age range, planning for retirements is essential.
- **Diversity Initiatives:** Maintain the gender balance and promote inclusive leadership roles.
- **Performance Optimization:** Use the tenure-performance correlation to mentor newer employees.

## Page 2 - Skills, Training, and Development:

### 1. Overall Metrics Summary

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#### Page 3: Salary Distribution and Pay Equity

Purpose:

To ensure compensation fairness and transparency across the workforce.

Visualizations and Insights:

1. Salary Quartile Distribution:
  - Analyzes salary distribution across quartiles.
  - Insight: The top 25% of employees receive a disproportionately higher salary share.

2. Pay Progression Curve (Line Chart):
  - Tracks salary growth by tenure and role.
  - Insight: Salary stagnation noted for senior employees in specific roles.
3. Gender Pay Gap Analysis (Box Plot):
  - Compares salaries across genders segmented by roles and departments.
  - Insight: Minimal gender pay gap in technical roles but disparities in administrative roles.
4. High Earners Anomaly Detection (Scatter Plot):
  - Identifies high-salary employees with low performance or engagement.
  - Insight: Few high-salary underperformers were identified for coaching or reassessment.

Key Takeaways:

- The organization has a relatively fair pay structure but needs to address anomalies.
- Focus needed on salary progression for long-tenure employees.

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## Page 4: Strategic Workforce Planning

Purpose:

To forecast workforce trends and mitigate risks associated with turnover and hiring.

Visualizations and Insights:

1. Turnover Pipeline Simulation (Funnel Chart):
  - Visualizes employee flows from hiring to turnover.
  - Insight: High turnover noted in entry-level roles.
2. Role Importance vs. Turnover Risk (Scatter Plot):
  - Maps roles by turnover risk and importance.
  - Insight: Financial Analyst roles have the highest attrition rates, impacting productivity.
3. Net Workforce Change (Line Chart):
  - Tracks yearly changes in workforce size.
  - Insight: Workforce growth has plateaued, indicating stable hiring and retention.
4. Risk-Reward Matrix (Scatter Plot):
  - Maps employee engagement against turnover risk.
  - Insight: Low-engagement employees with high turnover risk need immediate attention.

### Key Takeaways:

- Focus retention efforts on high-turnover critical roles.
  - Forecast workforce needs to preempt talent shortages.
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### Conclusion

The HR Analytics Dashboard provides a holistic view of workforce metrics, enabling better decision-making across multiple HR dimensions.

- **Diversity and Inclusion:** Highlighted underrepresented groups and departments needing more diverse hiring.
- **Skill Development:** Identified critical skill gaps and the importance of consistent training programs.
- **Pay Equity:** Ensured transparency in compensation while addressing anomalies.
- **Workforce Planning:** Helped forecast future trends and mitigate risks associated with turnover.

By leveraging these insights, the organization can enhance employee satisfaction, ensure equitable compensation, and achieve strategic workforce stability.

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### Conclusion:

This HR Analytics Dashboard serves as a critical tool for HR managers, enabling them to:

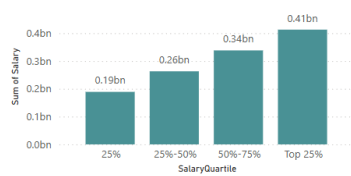
- Identify patterns of employee attrition by department, role, and demographics.
- Understand the impact of factors like job satisfaction, income, and business travel on retention.
- Develop data-driven strategies to improve employee engagement, retention, and workforce management.

By leveraging the insights provided, HR teams can address key challenges, optimize employee satisfaction, and strengthen organizational performance.

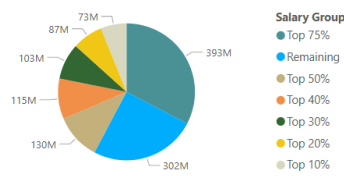
## HR Analytics [Salary Distribution and Pay Equity]

|                      |           |                                |                     |
|----------------------|-----------|--------------------------------|---------------------|
| Highest Earner count | Employees | Highest Avg. Salary Department | Salary vs Benchmark |
| 3753                 | 15.00K    | 80.94K                         | 5.16K               |

Salary Quartile



Salary Grouping



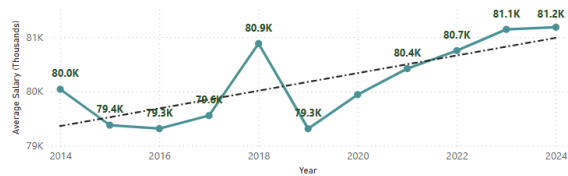
Salary Distributions by Department > Job Role > Gender



Avg Salary by Tenure Group



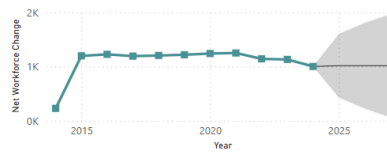
Salary Progress Over Years



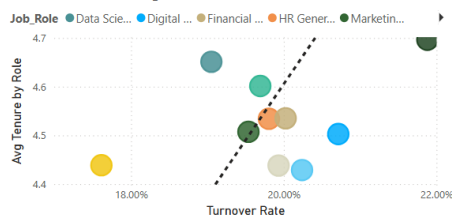
## HR Analytics [Strategic Workforce Planning]

|                    |                       |
|--------------------|-----------------------|
| Avg Tenure By Role | Turnover Rate by Year |
| 4.53               | 20.08%                |

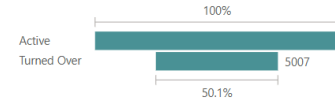
Net Workforce Change



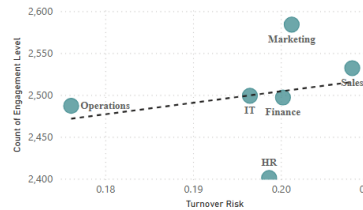
Role Importance and Turnover Risk



Employee Stage Pipeline



Workforce Turnover vs. Engagement



| Job Role             | Count of Employee |
|----------------------|-------------------|
| Financial Analyst    | 2497              |
| Operations Manager   | 2487              |
| Sales Executive      | 1298              |
| Marketing Analyst    | 1295              |
| Digital Marketer     | 1289              |
| Software Engineer    | 1255              |
| Data Scientist       | 1244              |
| Sales Representative | 1234              |
| HR Generalist        | 1232              |
| Recruitment Manager  | 1169              |

Role Distribution Timeline

