



# HR Analytics

Empowering HR with Data-Driven Insights for a  
Thriving Workforce

# Teamwork

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Dashboard 2 and its attached report  
Report Dashboard 1

Data cleaning with its attached report  
Questions For Visualization

## Roles

Data Exploration with its attached report

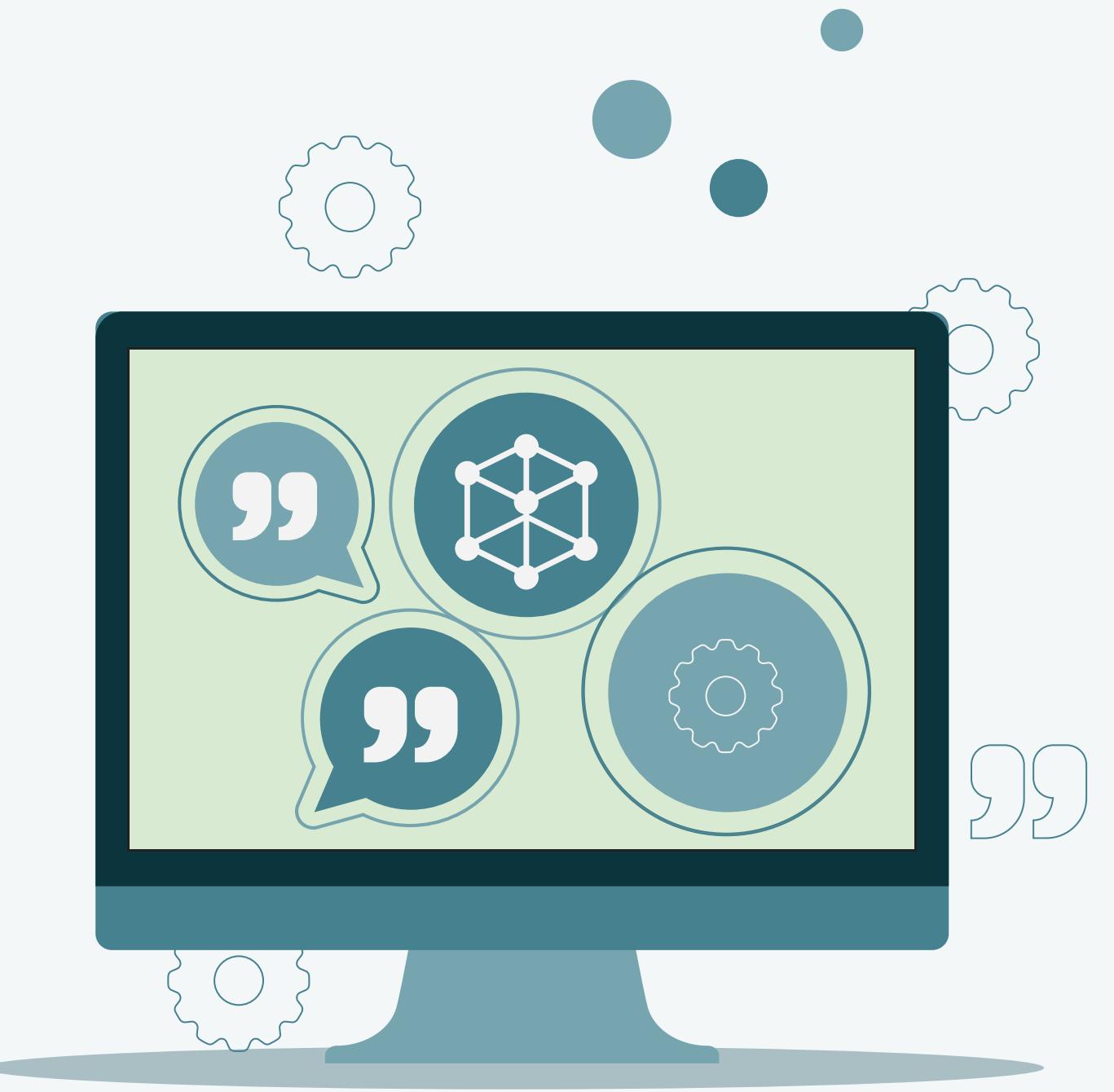
Home Page  
Dashboard 1  
Mockups  
Presentation

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- 03 **Mockups**
- 04 **Data Exploration**
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# Overview

01

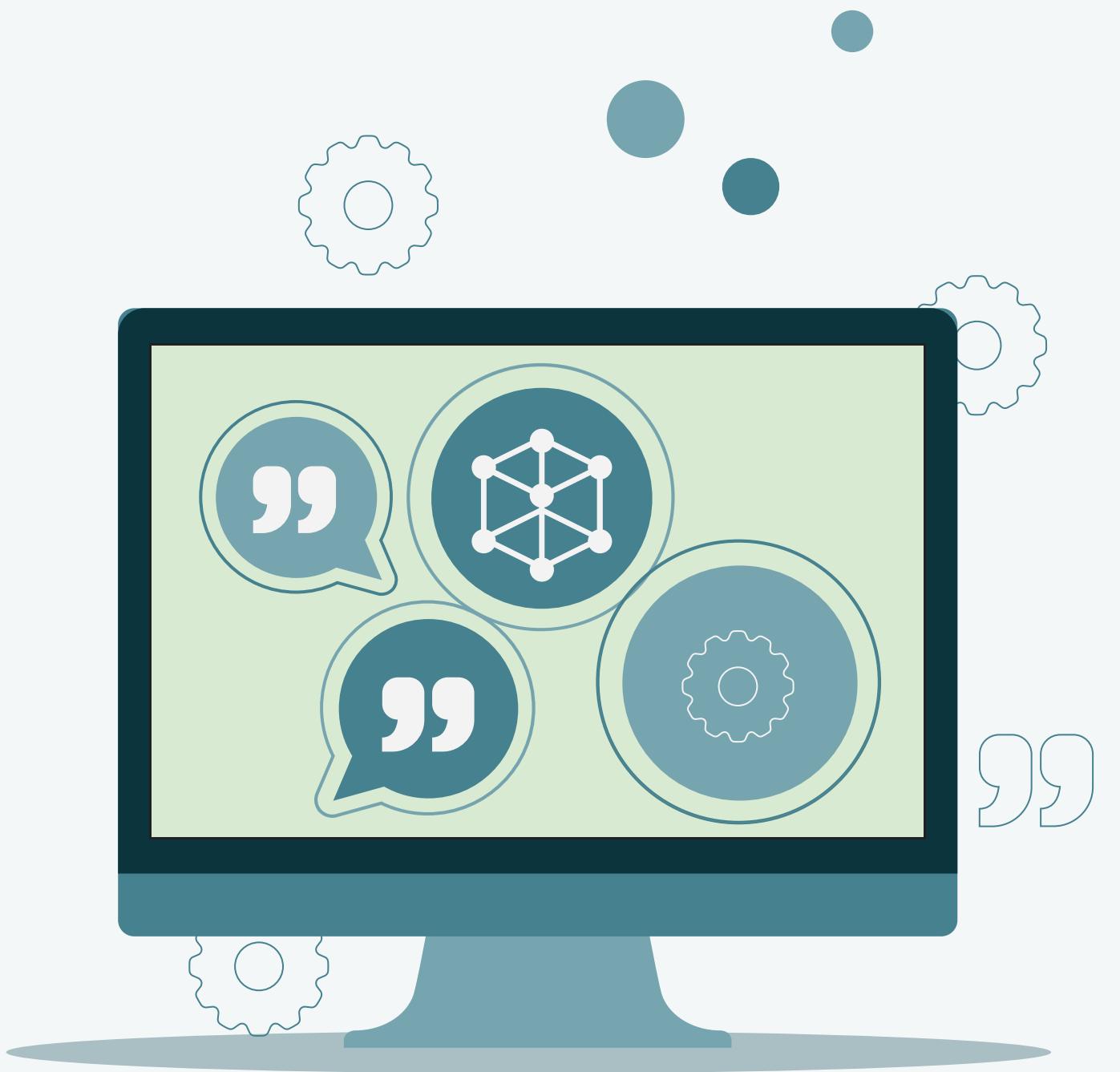


# HR Analytics Dataset Summary

- This dataset includes employee information and performance metrics to analyze behavior and trends in the workplace. Key variables include employee ID, age, gender, department, job role, years of experience, salary, performance rating, attrition status, overtime, education level, work-life balance, and satisfaction level
- It is used for workforce analysis, predicting employee turnover and improving HR strategies to enhance employee retention and satisfaction.

# 02

# Questions For Visualization



## 1. Attrition Overview:

- What is the overall employee count, and how many employees have left the company?
- What is the attrition rate, and how does it compare to industry standards?

## 2. Demographics and Attrition:

- What is the distribution of attrition by gender?
- How does the average age of employees relate to the attrition rate?
- What is the relationship between the length of service (YearsAtCompany) and attrition?

## 3. Departmental Analysis:

- Which departments have the highest and lowest attrition rates?
- How does attrition vary by job role within each department?
- What are the job satisfaction ratings across different departments?

## 4. Job Satisfaction Insights:

- What is the average job satisfaction rating for each job role?
- How do job satisfaction ratings correlate with employee attrition?
- Are there significant differences in job satisfaction ratings between genders?

## 5. Salary Analysis:

- How does attrition correlate with different salary slabs?
- What is the average job satisfaction for employees in each salary slab?

## 6. Performance and Environment Satisfaction :

- What is the relationship between environment satisfaction and job roles?
- How does environment satisfaction impact job satisfaction and attrition rates?

## 7. Longitudinal Analysis:

- What trends can be observed in attrition over the years at the company?
- Is there a correlation between the number of years an employee has been at the company and their likelihood of leaving?

## 8. Travel and Work-Life Balance:

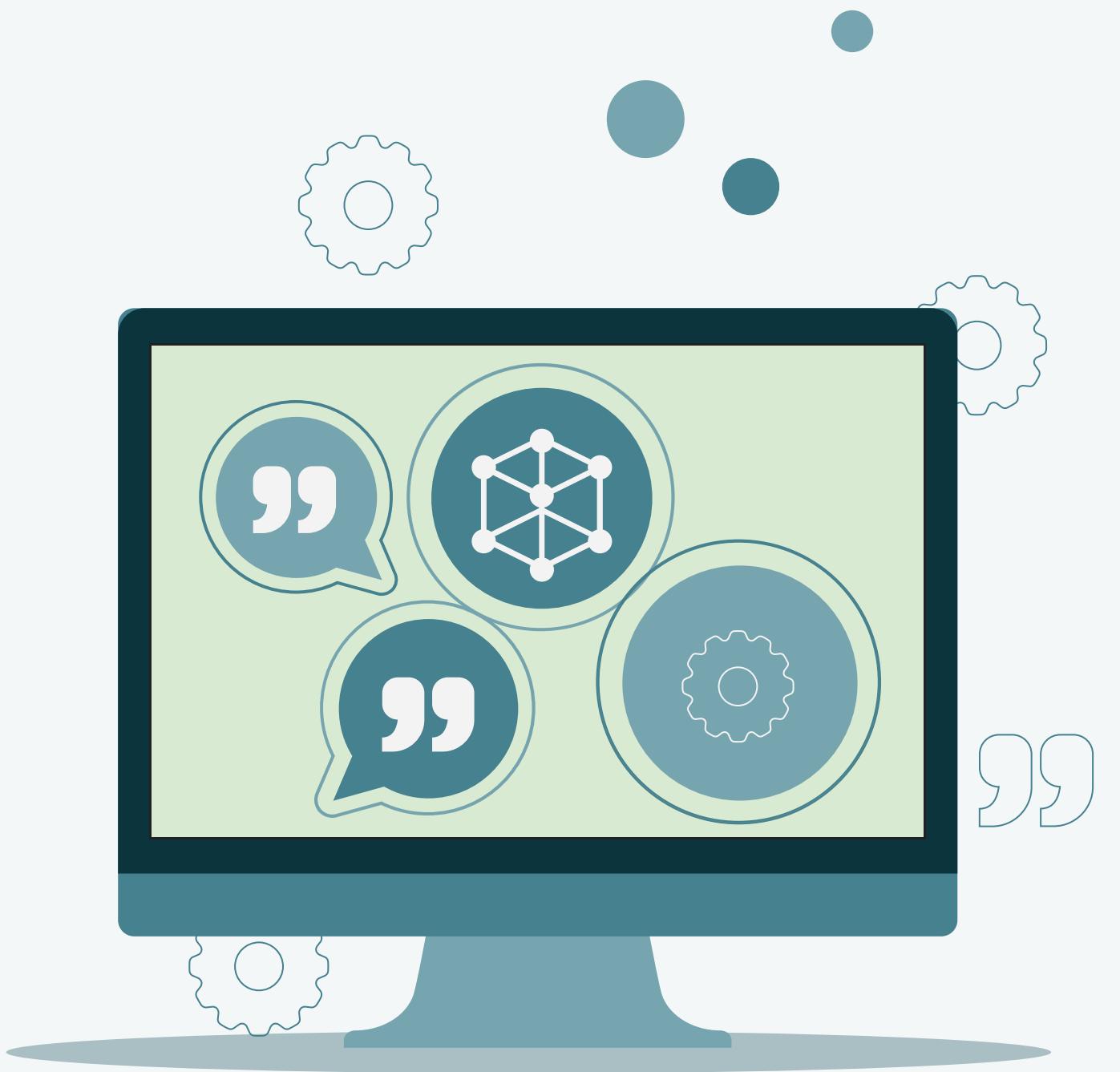
- Does the frequency of business travel impact employee job satisfaction and attrition?
- How do employees who travel frequently rate their work-life balance compared to non-traveling employees?

## 9. Training and Development:

- How does the frequency of training impact job satisfaction and employee retention?
- Are employees who receive more training opportunities more satisfied with their jobs?

03

# Mockups



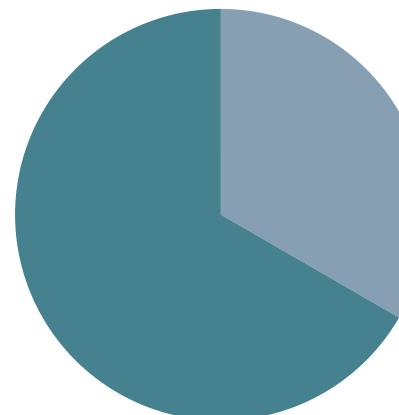


# HR Analytics

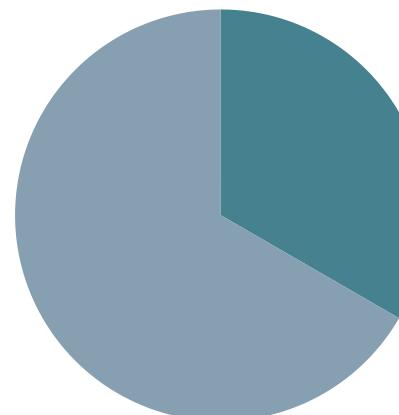
# HR Analytics



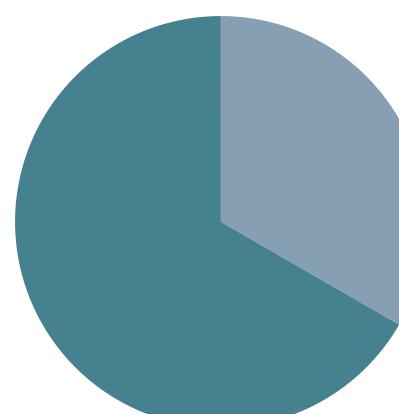
Attrition by Age Group



Age Group 1



Age Group 2

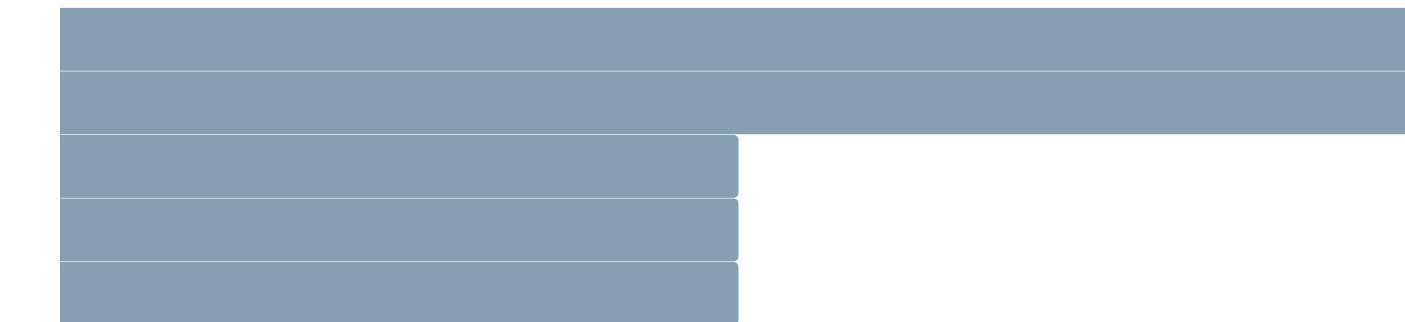


Age Group 3

Attrition Count



Attrition by Salary Slap



Attrition by Gender

Female

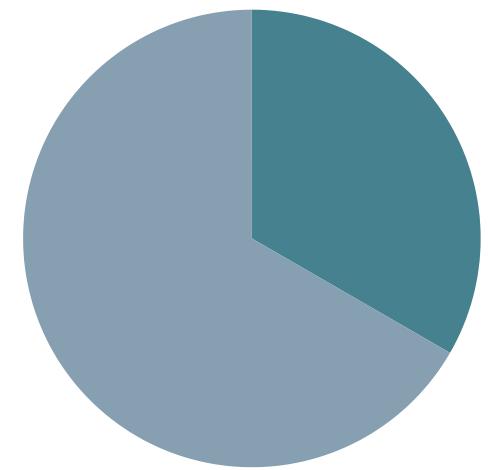


Male

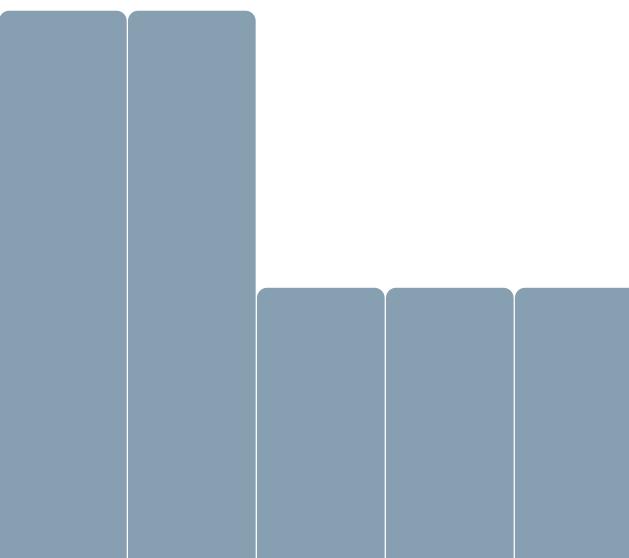


Attrition Rate

Attrition by Department



Attrition by Travel



# HR Analytics

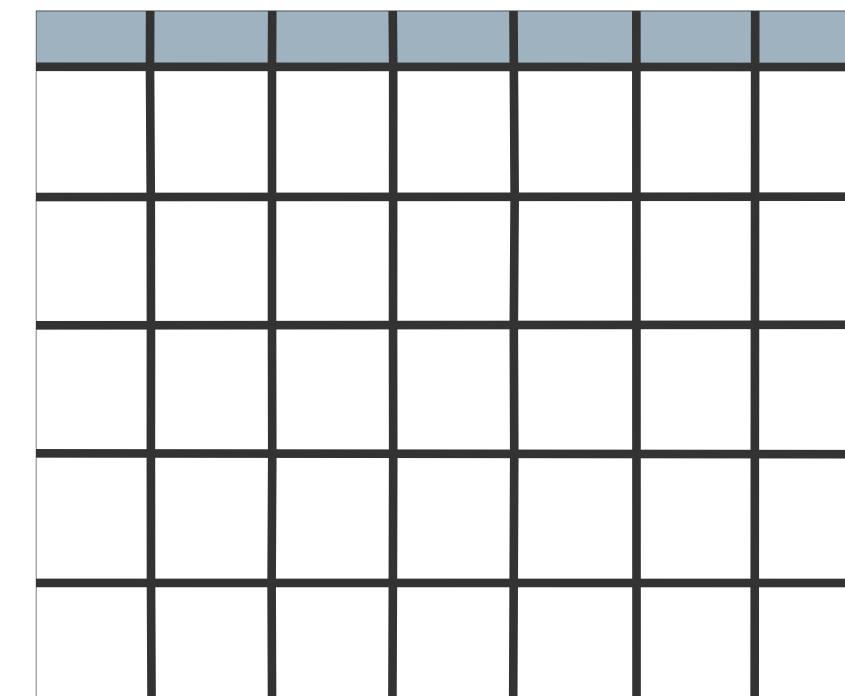


Employee Count

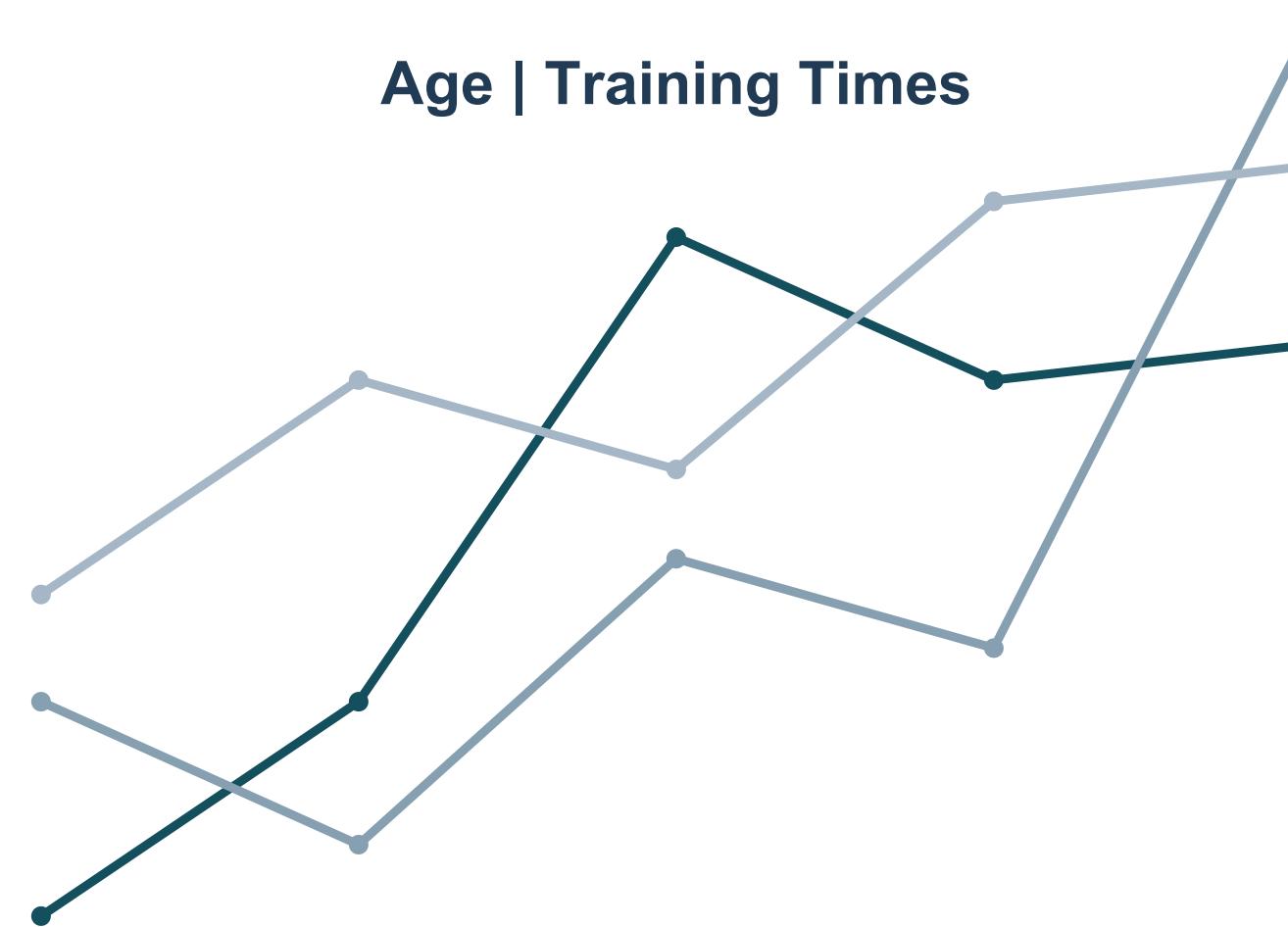
Active Employee

Avg Age

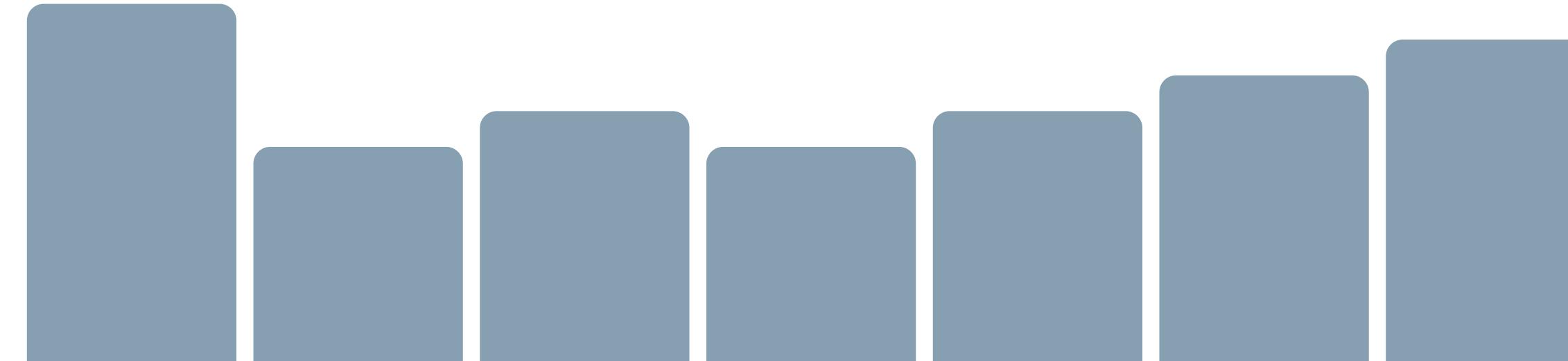
Job  
Satisfaction  
Rating



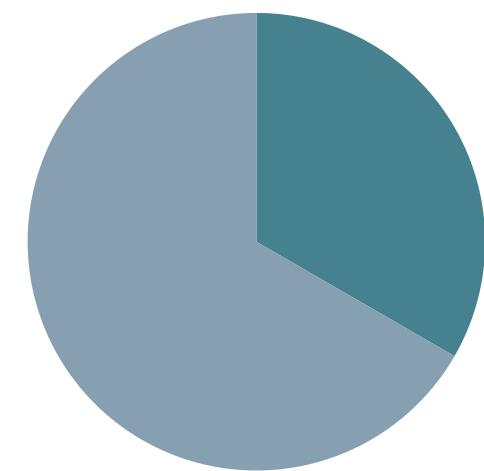
Age | Training Times



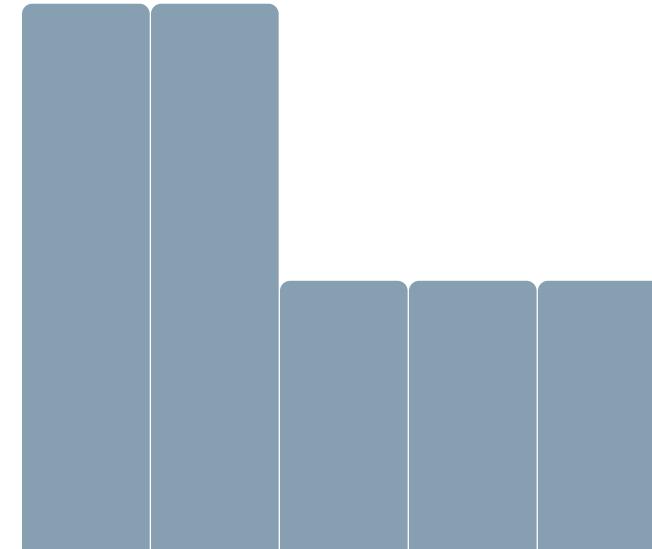
Environment Satisfaction by job Role



Department by Environment satisfaction

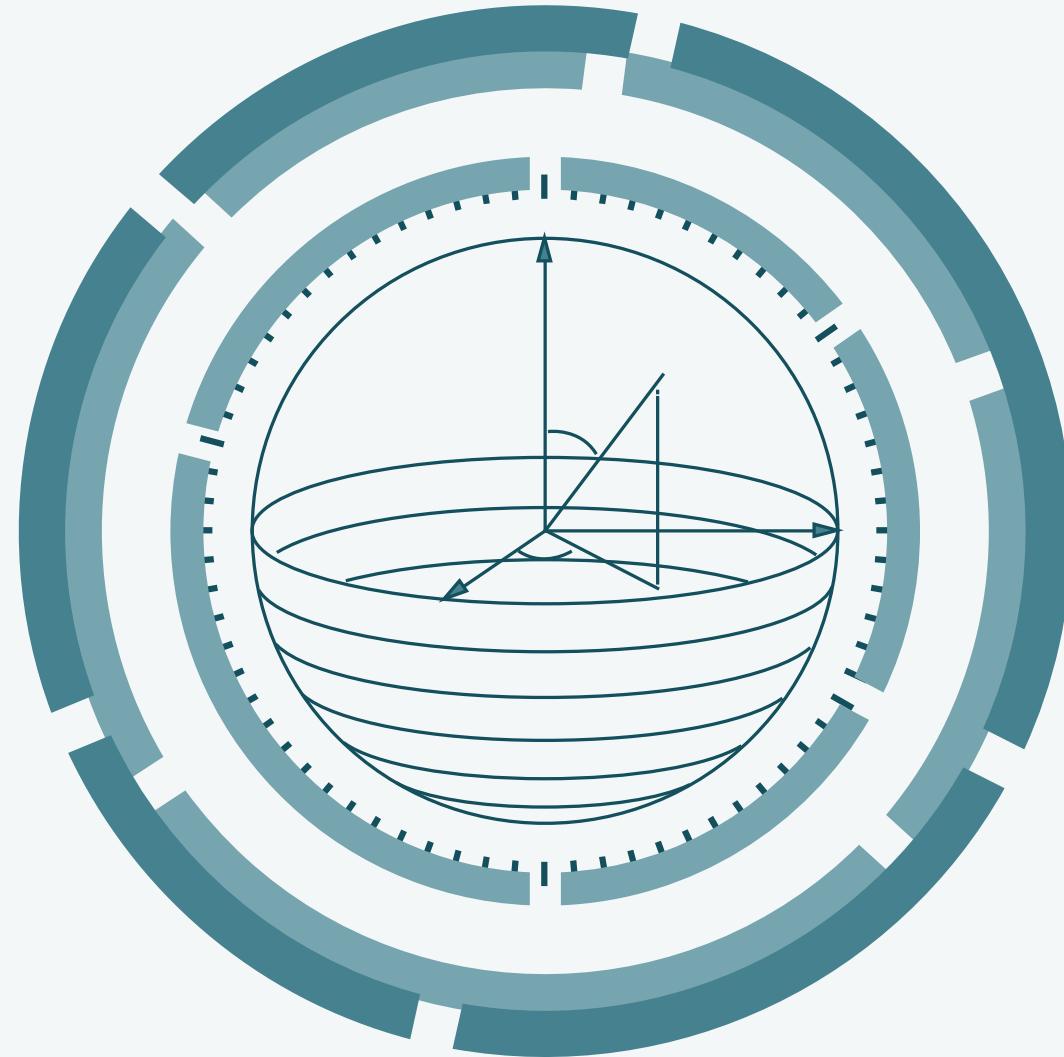


Gender by Department



# Data Exploration

04



1.480

Rows

35

Columns

18 to 60 years

Employee Age Ranges

1 (Low) to 4 (Very High)

Job Satisfaction

801.38

Range between 102 and 1499

Average Monthly Income

9.22 km

Minimum : 1 km , Maximum : 29 km

Distance from Home

## Department Distribution

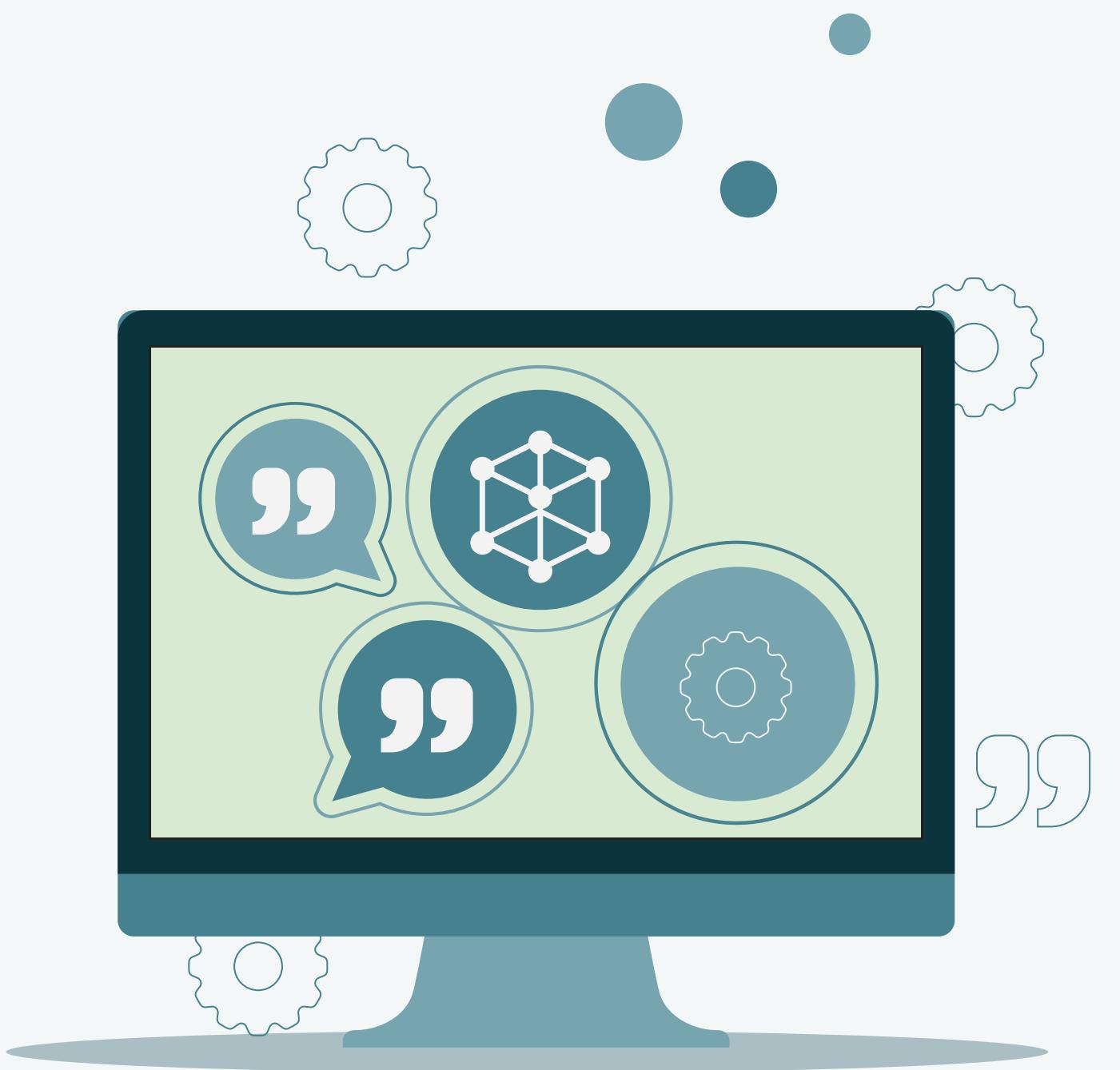
**Research & Development  
Human Resources  
Sales**

# Key Finding

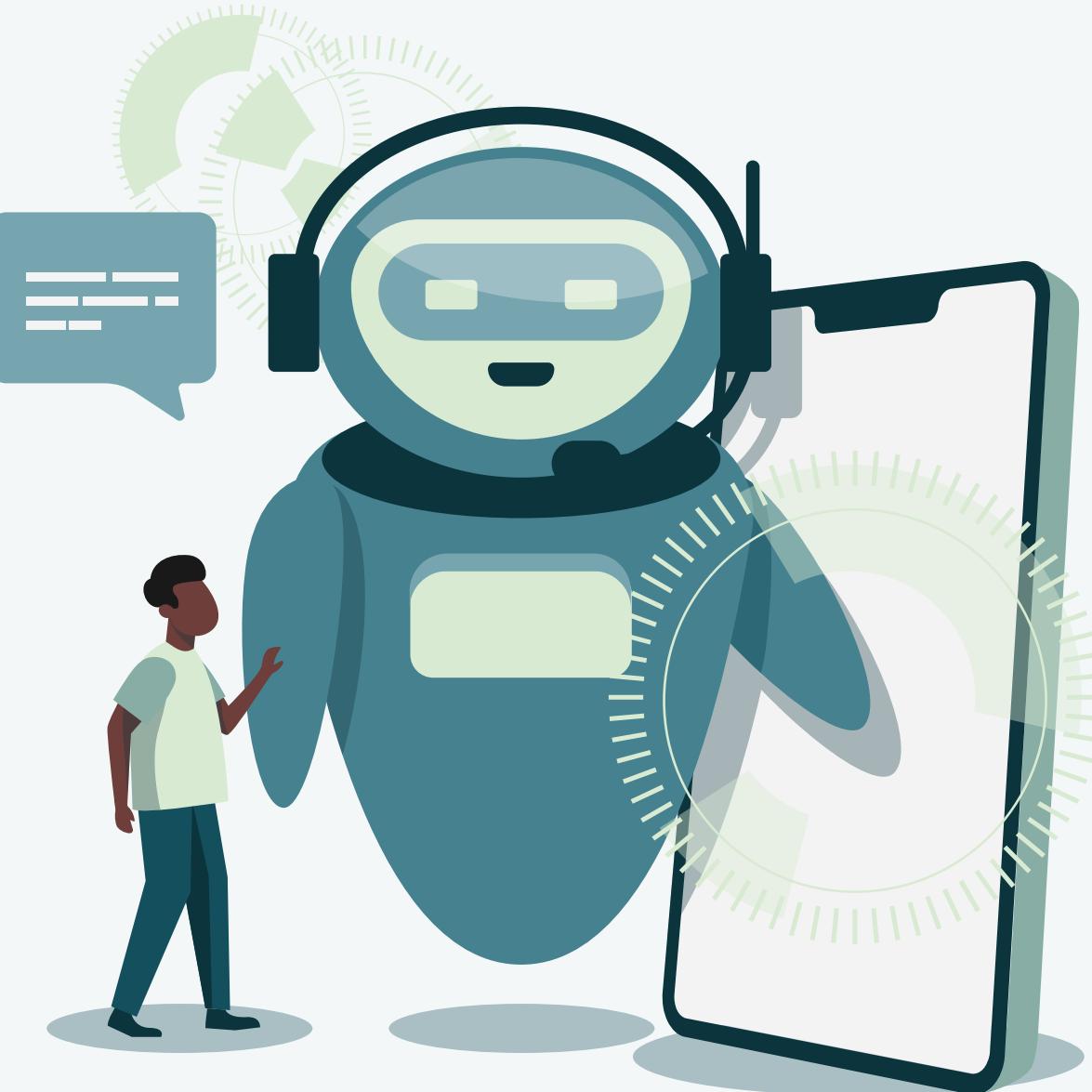
- **Income and Years of Service:** There's a general correlation between income and years of service, but this can vary by department and job role.
- **Department Analysis:** Research & Development is the largest department, indicating its importance to the organization.
- **Business Travel:** Most employees either travel frequently or not at all. Occasional travel may impact job satisfaction.
- **Job Satisfaction and Turnover:** Departments with higher job satisfaction tend to have lower turnover rates.
- **Distance from Home:** Longer commutes may negatively impact job satisfaction and increase attrition.

05

# Data Cleaning

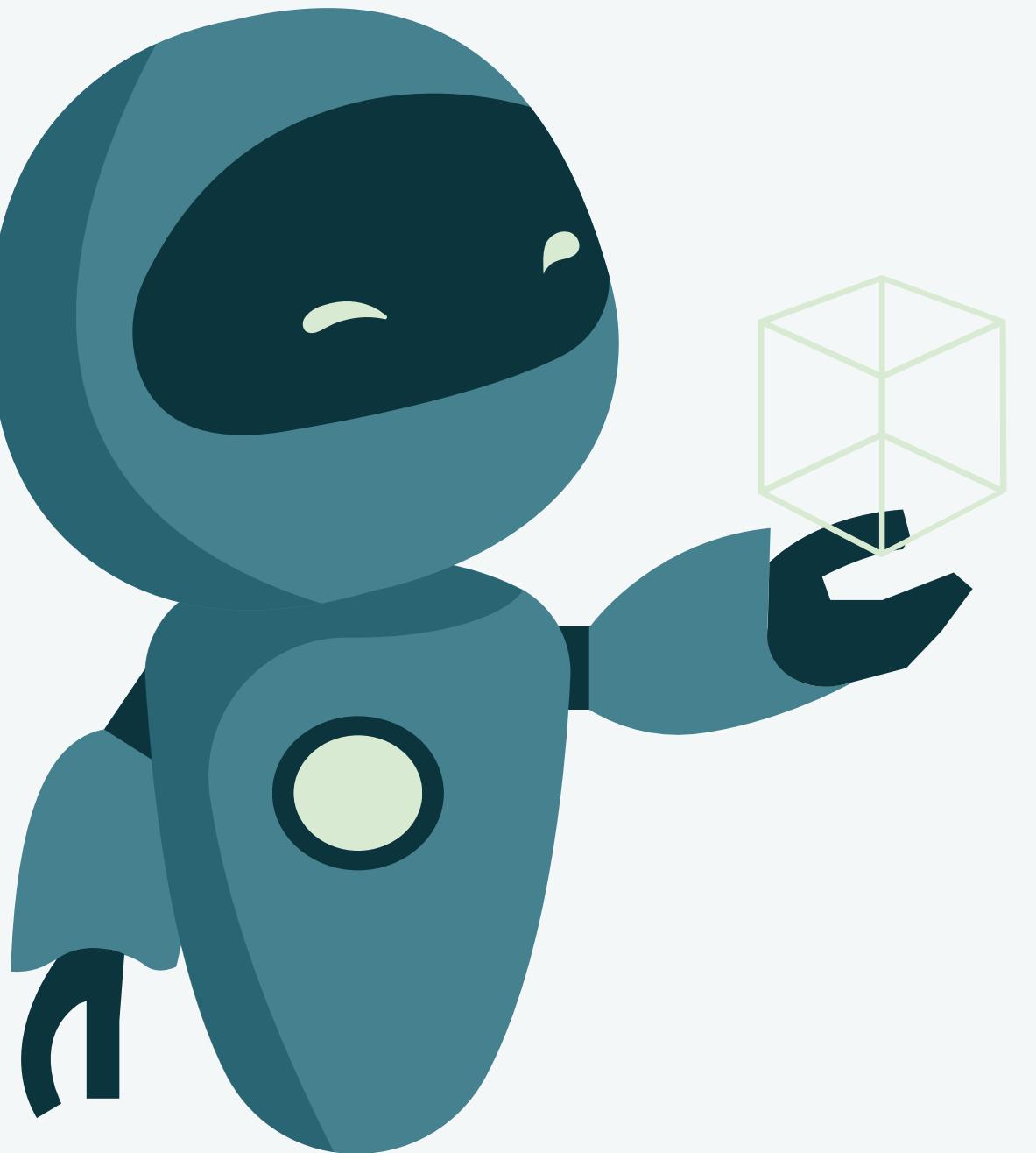


- **Handling Missing Values:** The missing values in the YearsWithCurrManager column were filled with the most frequent value to preserve data integrity.
- **Modifying Columns:** The PercentSalaryHike column was updated by appending a percentage sign (%) to improve clarity, indicating the values represent salary increases.
- **Removing Duplicates:** Duplicate rows in the dataset were identified and removed using Pandas' drop\_duplicates() function to ensure accurate and unbiased analysis.



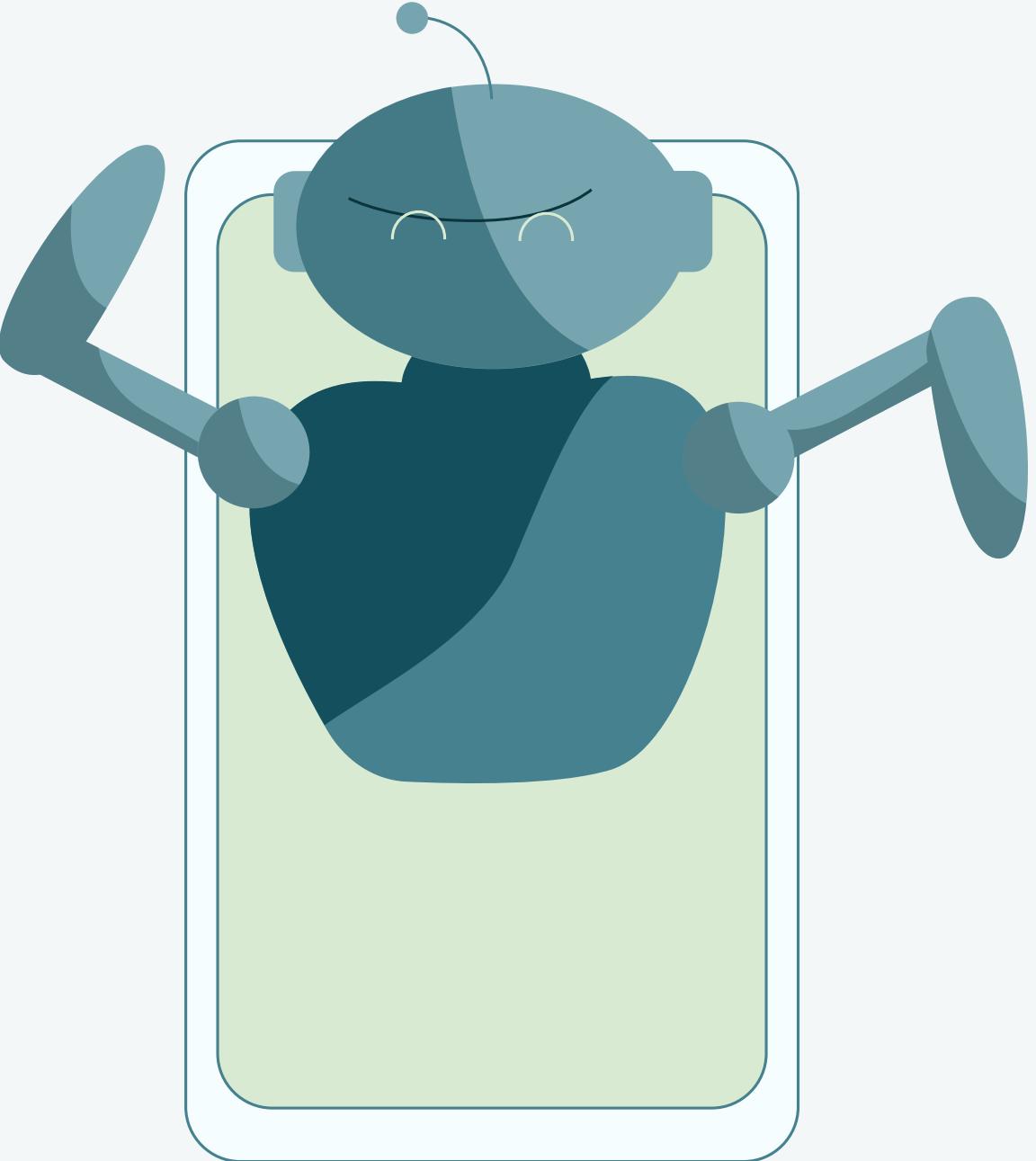
# Data Visualization

06



# Dashboard 1

1. Bar Charts
2. Pie Charts
3. Line Chart
4. Histogram



# 1. Bar Charts

- **Attrition Count:** A simple bar chart showing the total number of employee attritions.
- **Attrition Rate:** A horizontal bar chart comparing the attrition rates between male and female employees.
- **Department Wise Attrition:** A bar chart displaying the number of attritions in each department.
- **Attrition by Salary Slap:** A bar chart representing the distribution of attritions across different salary ranges.
- **Attrition by Years at Company:** A bar chart showing the number of attritions based on the length of time employees have been with the company.
- **Attrition by Travel:** A bar chart comparing the attrition rates for different travel frequencies.

## 2. Pie Charts:

- **Department Wise Attrition (Pie Chart):** A pie chart illustrating the percentage of attritions in each department.
- **Attrition by Age Group:** Pie charts for each age group showing the proportion of employees who have left and stayed.

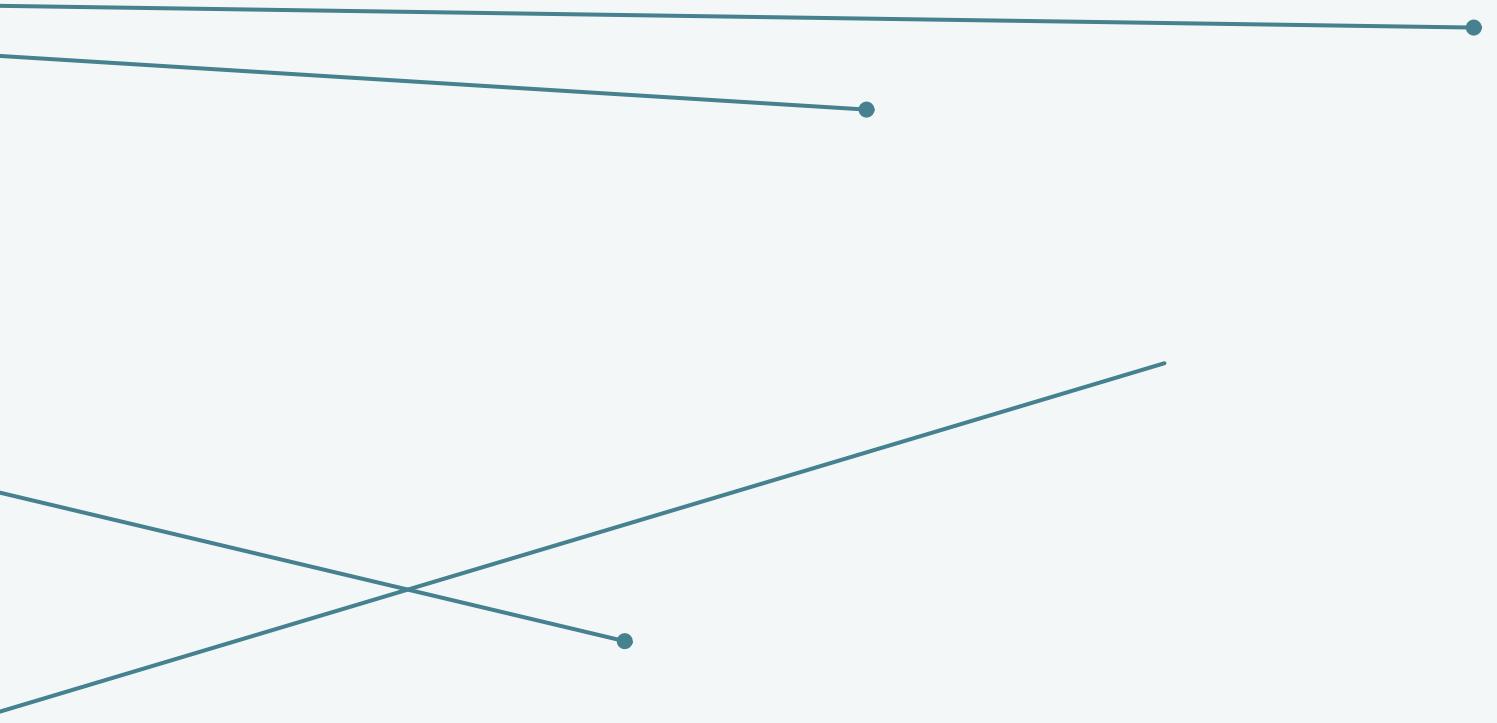
## 3. Line Chart:

- **Attrition by Years at Company (Line Chart):** A line chart visualizing the trend of attritions over the years employees have been with the company.

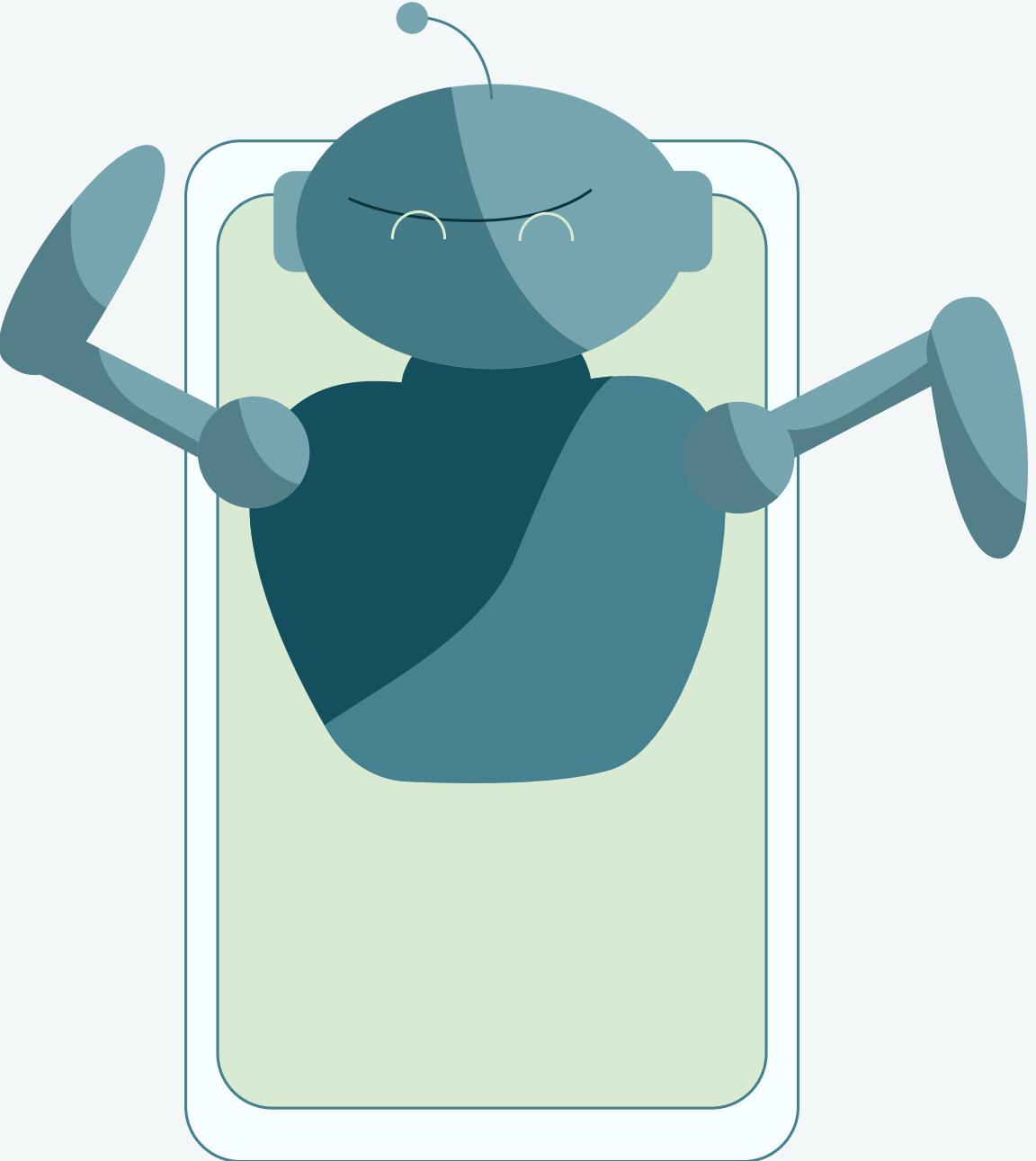
## 4. Histogram:

- **Attrition by Years at Company (Histogram):** A histogram representing the distribution of attritions across different ranges of years with the company.

# Dashboard 2



1. Bar Charts
2. Pie Charts
3. Line Chart
4. Table



# 1. Bar Charts

- **Employee Count and Active Employee:** Simple bar charts showing the total number of employees and active employees.
- **Job Satisfaction Rating:** A bar chart displaying the distribution of job satisfaction ratings across different job roles.
- **Environment Satisfaction by Job Role:** A bar chart comparing the environment satisfaction levels for each job role.
- **Gender/Department:** Bar charts showing the number of employees in each gender and department combination.

## 2. Pie Charts:

- **Department | Environment Satisfaction:** A pie chart illustrating the distribution of environment satisfaction ratings across different departments.

## 3. Line Chart:

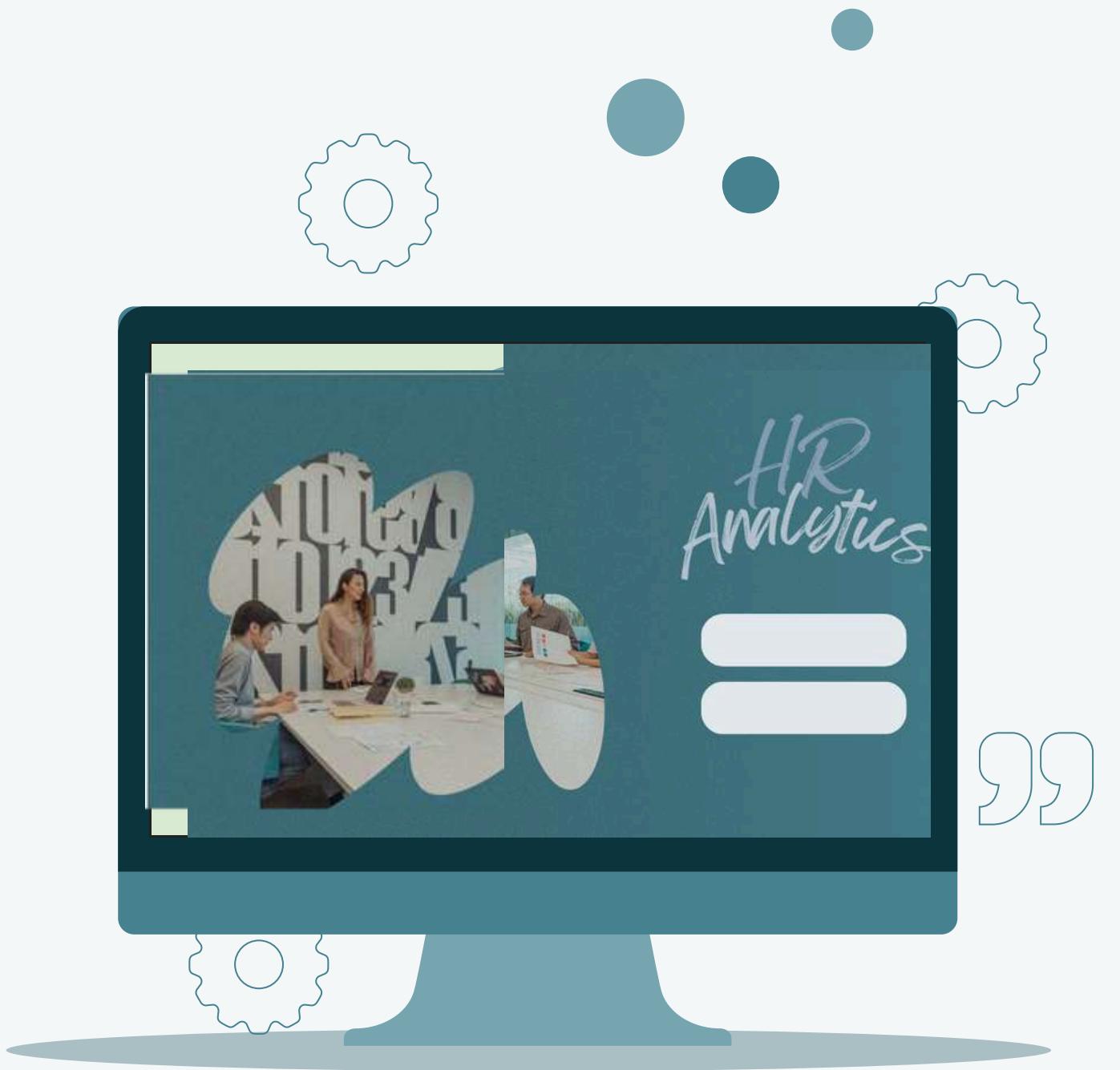
- **Age | Training Times:** A line chart visualizing the trend of training times for different age groups.

## 4. Table:

- **Job Satisfaction Rating:** A table summarizing the job satisfaction ratings for each job role.

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# Dashboard





# HR Analytics

General Dashboard

Attrition Dashboard



### Attrition Count

237

### Attrition Rate

16.09%

### Attrition by Gender

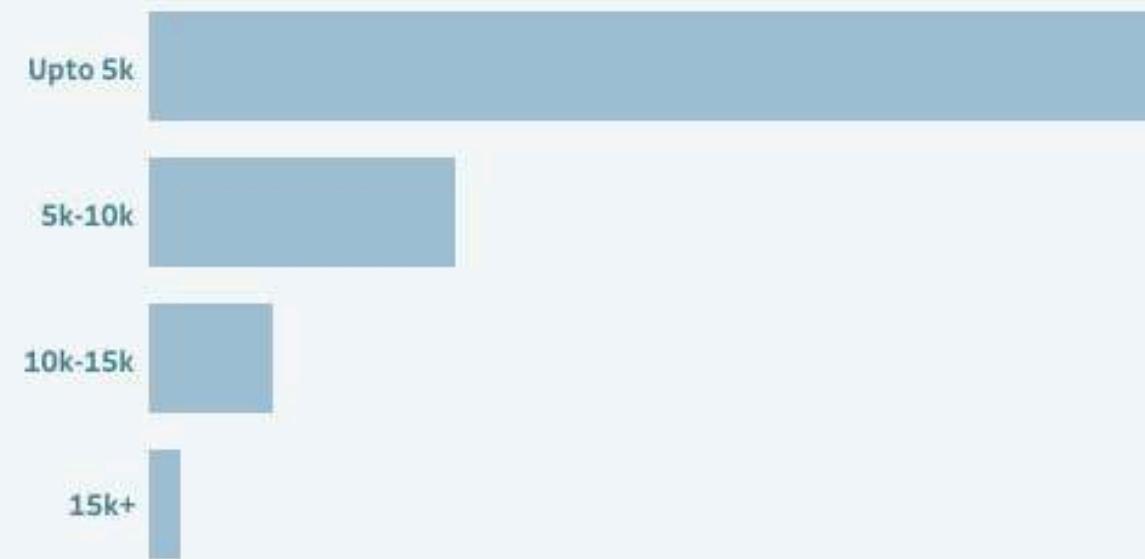
Female

87

Male

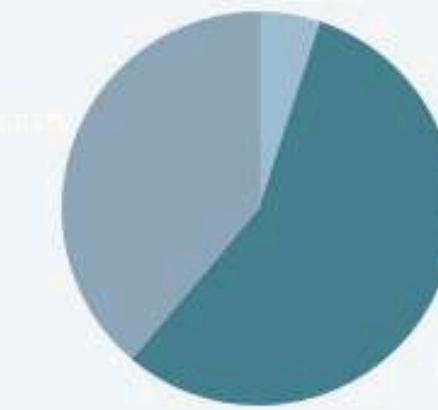
150

### Attrition by Salary Slap

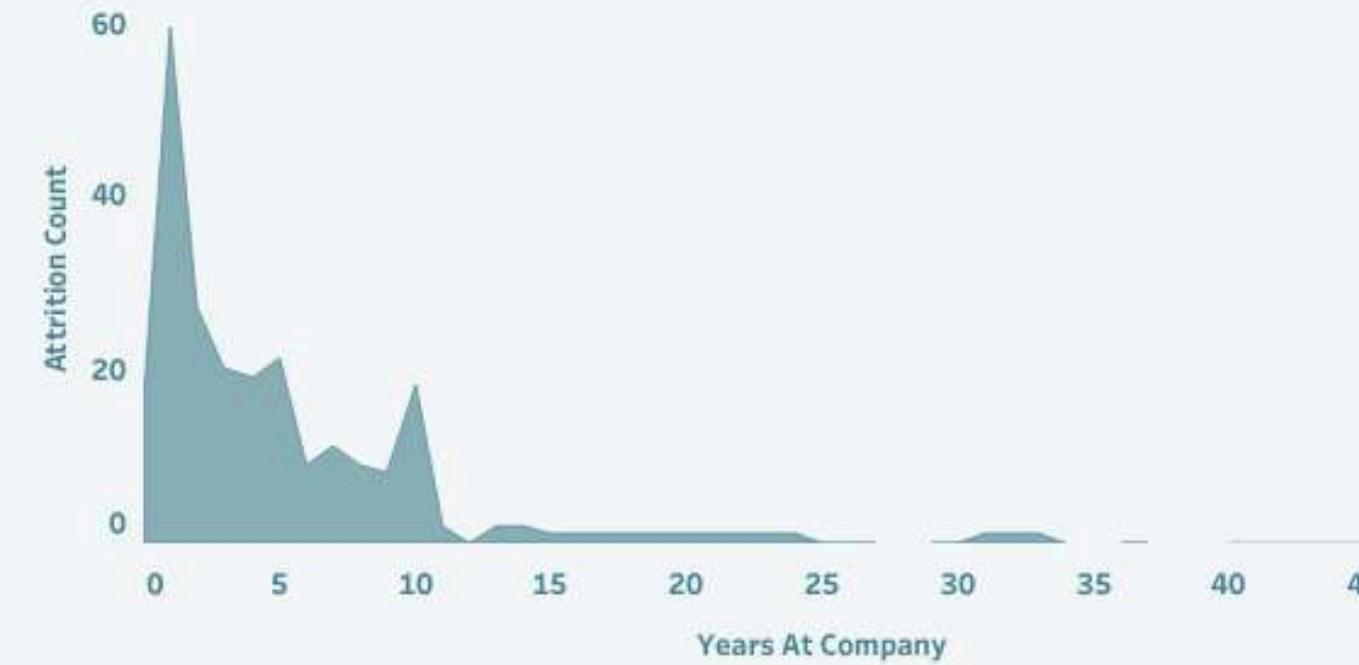


Department  
Human Resources  
Research & Development  
Sales

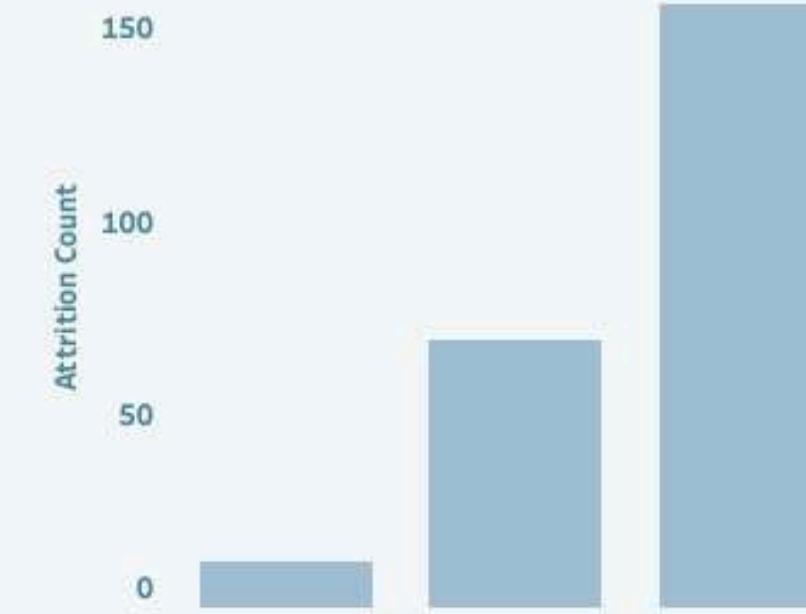
### Department Wise Attrition



### Attrition by Years At Company



### Attrition by Travel



### Attrition by Age Group

Attrition  
No  
Yes

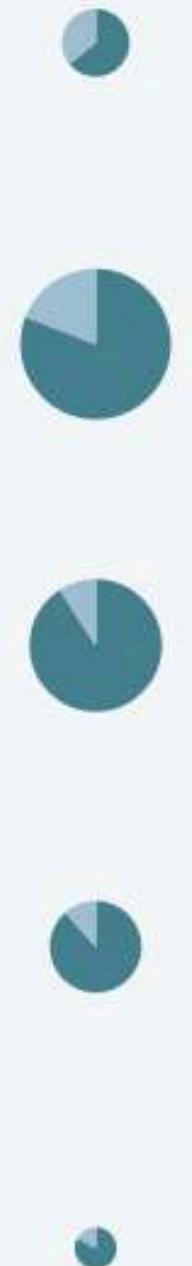
18-25

26-35

36-45

46-55

55+



Employee Count

1,473



Active Employee

1,236

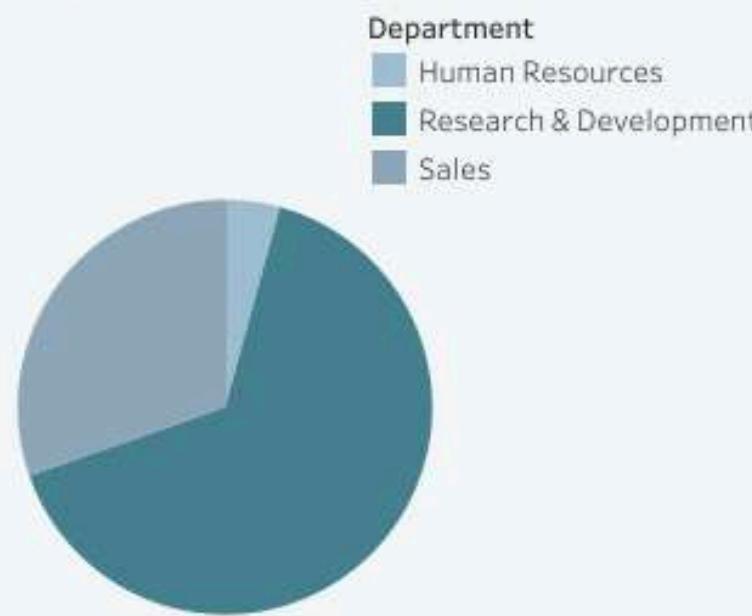
Avg Age

37

### Job Satisfaction Rating

Job Role	Job Satisfaction				
	1	3	4	2	Grand To..
Human Resources	10	13	13	16	52
Sales Representative	12	28	23	21	84
Research Director	15	27	22	16	80
Manager	21	27	33	21	102
Manufacturing Director	26	49	38	32	145
Healthcare Representative	27	43	43	19	132
Research Scientist	54	90	95	53	292
Laboratory Technician	56	75	81	48	260
Sales Executive	69	91	112	54	326
Grand Total	290	443	460	280	1,473

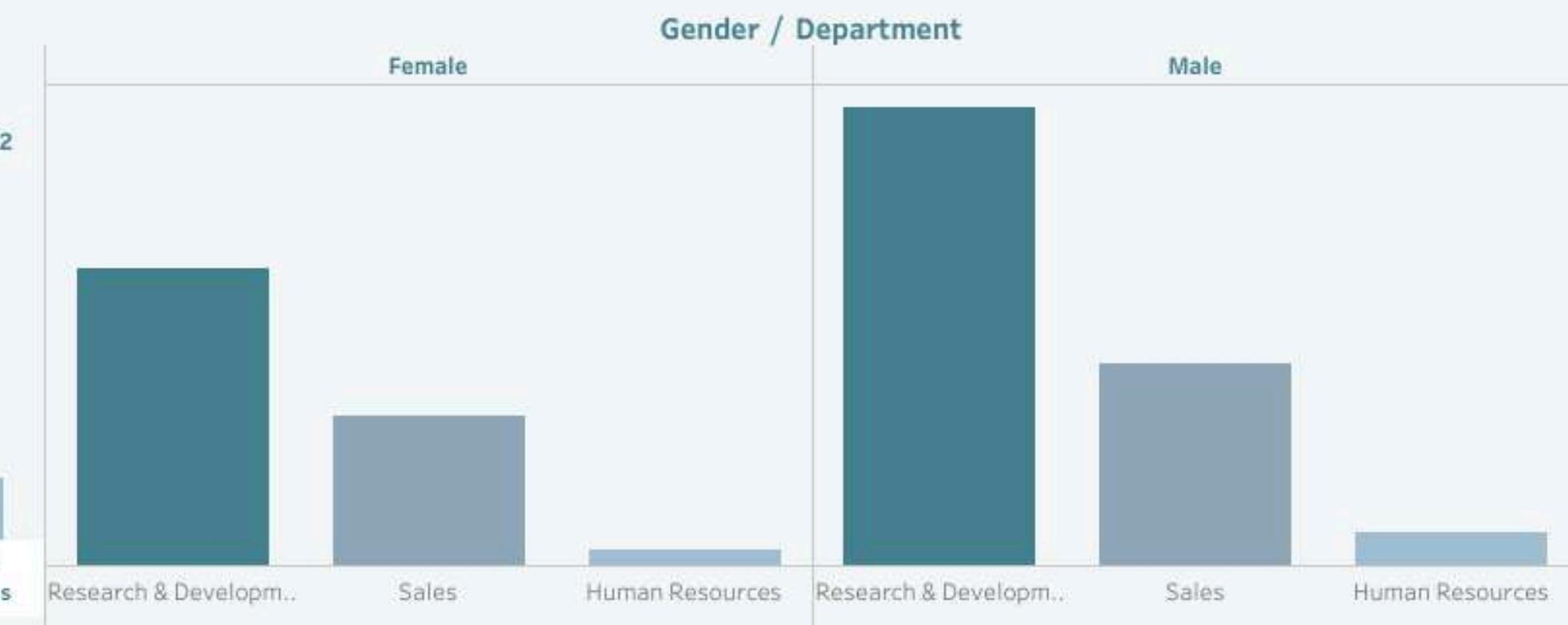
### Department | Environment Satisfaction



### Age | Training Times

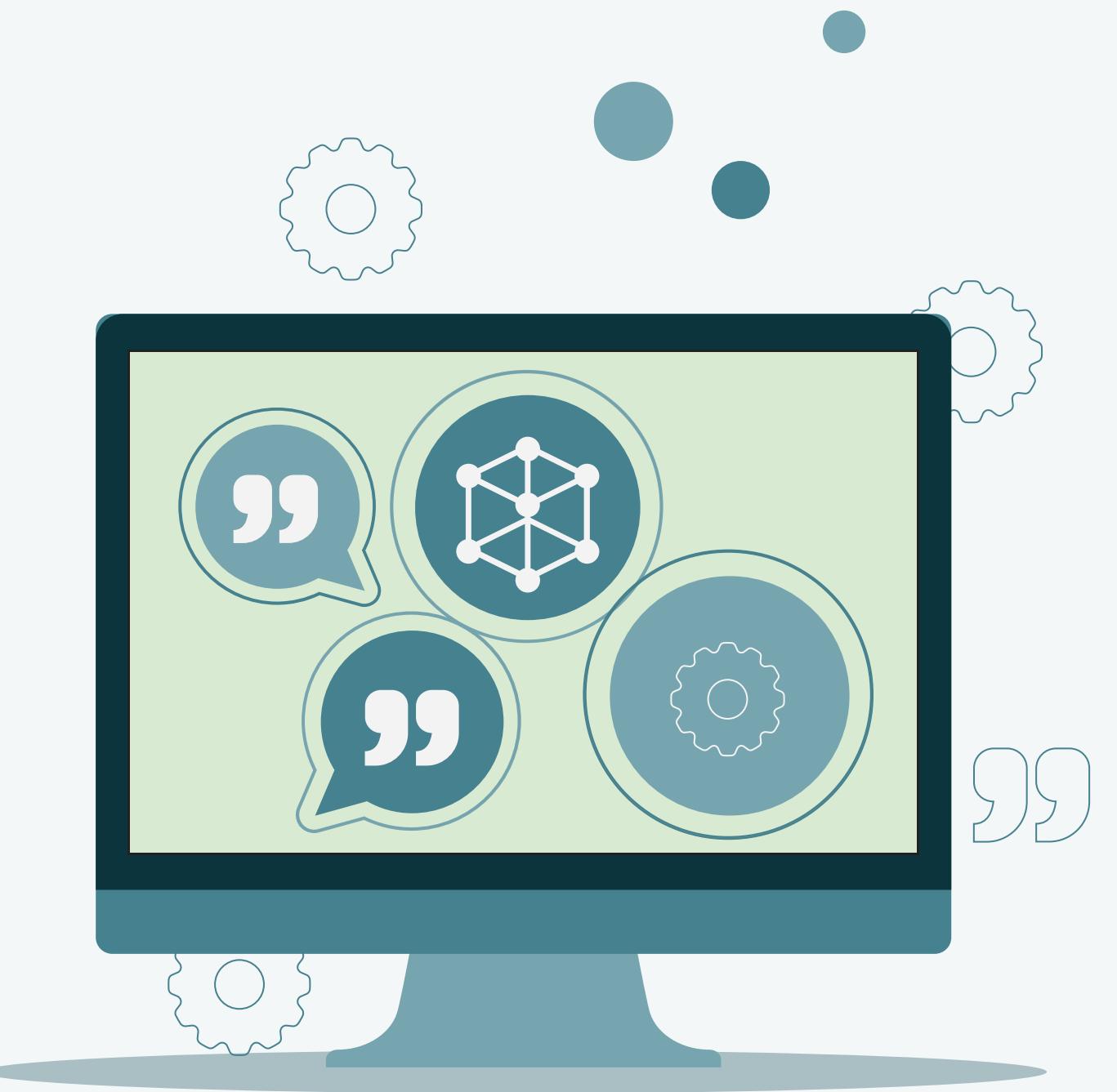


### Environment Satisfaction by Job Role



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# Report



Employee Count

**1,473**

Total number of employees.

Active Employee

**1,236**

Number of employees currently employed.

Attrition Count

**237**

Number of employees who have left the organization.

Attrition Rate

**16.09%**

Percentage of employees who have left the organization.

Avg Age

**37**

Average age of employees.

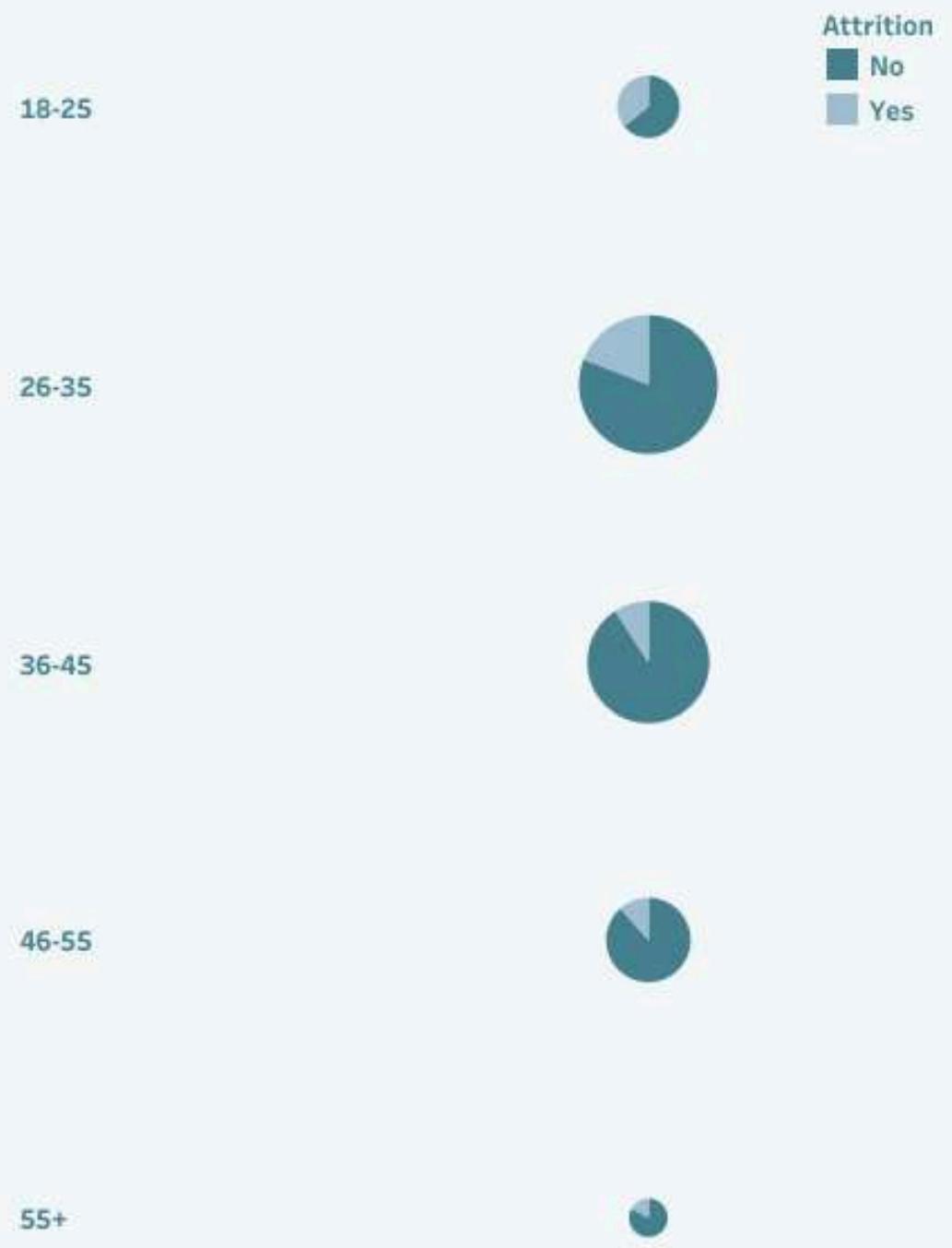


Navigator to 2nd dashboard



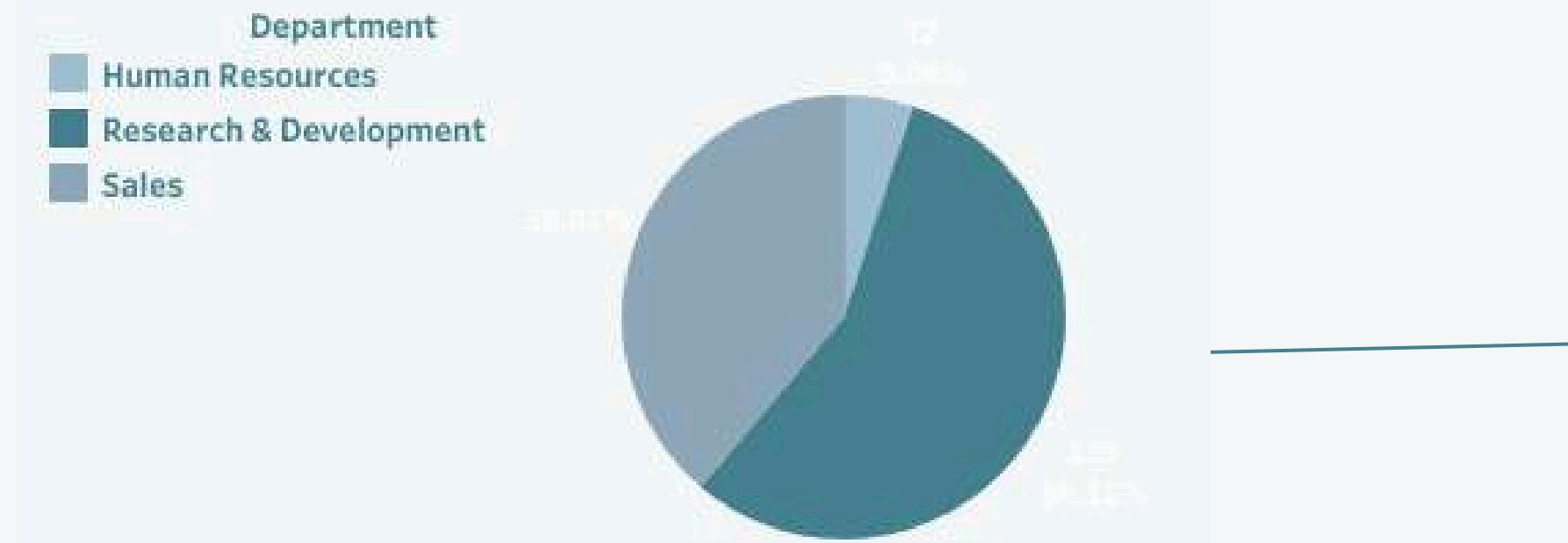
Navigator to Home Page

## Attrition by Age Group



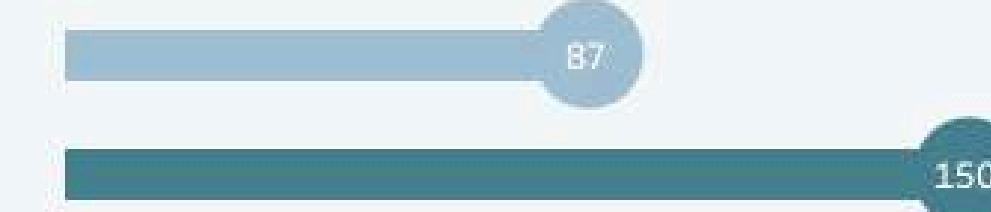
Younger employees, especially those aged 18-25, show a higher tendency to leave the organization. As age increases, the attrition rate decreases, with employees aged 55 and above showing the lowest attrition levels.

## Department Wise Attrition



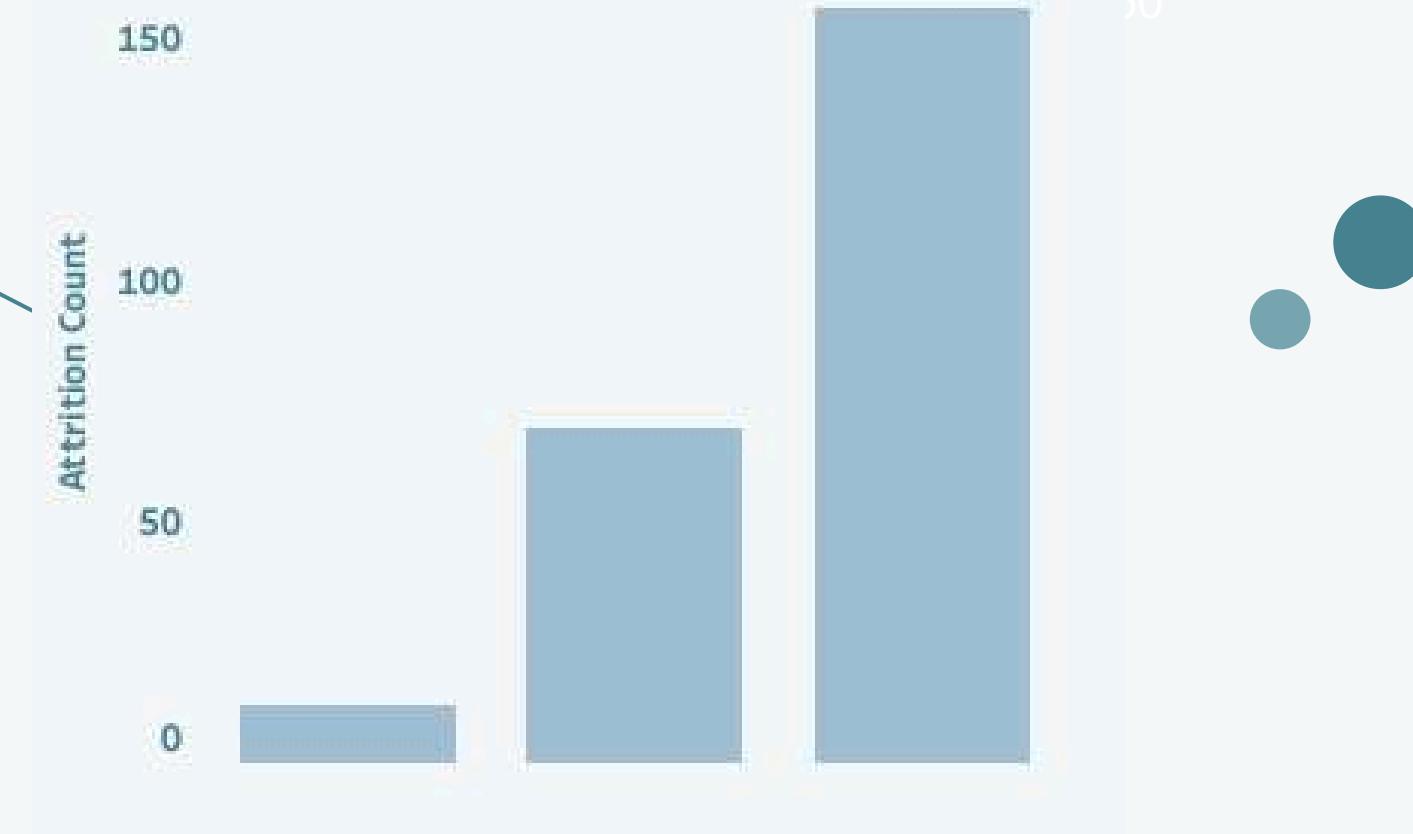
The Research & Development department experiences the highest attrition rates, followed by a moderate level in the Sales department. The Human Resources department has the lowest rate of employee turnover.

### Attrition by Gender

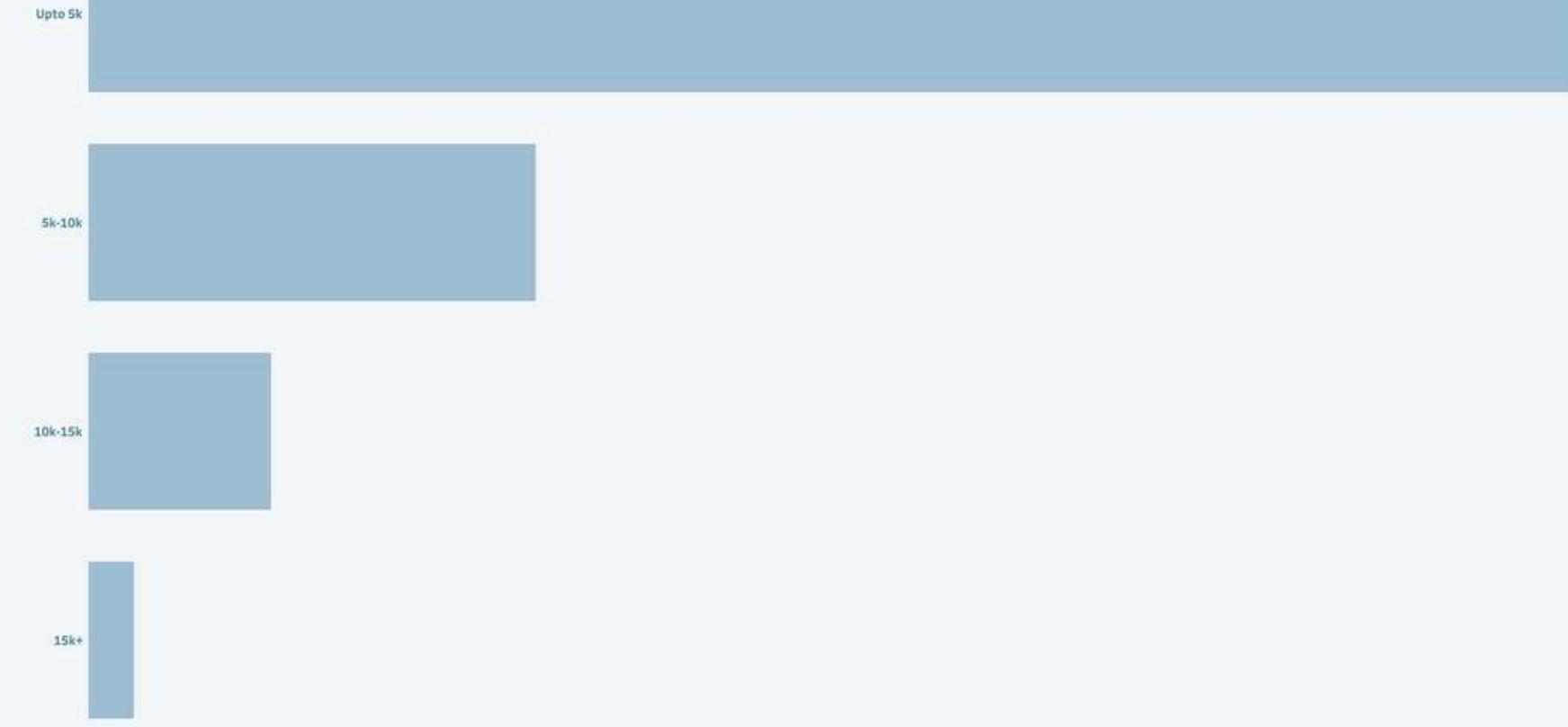
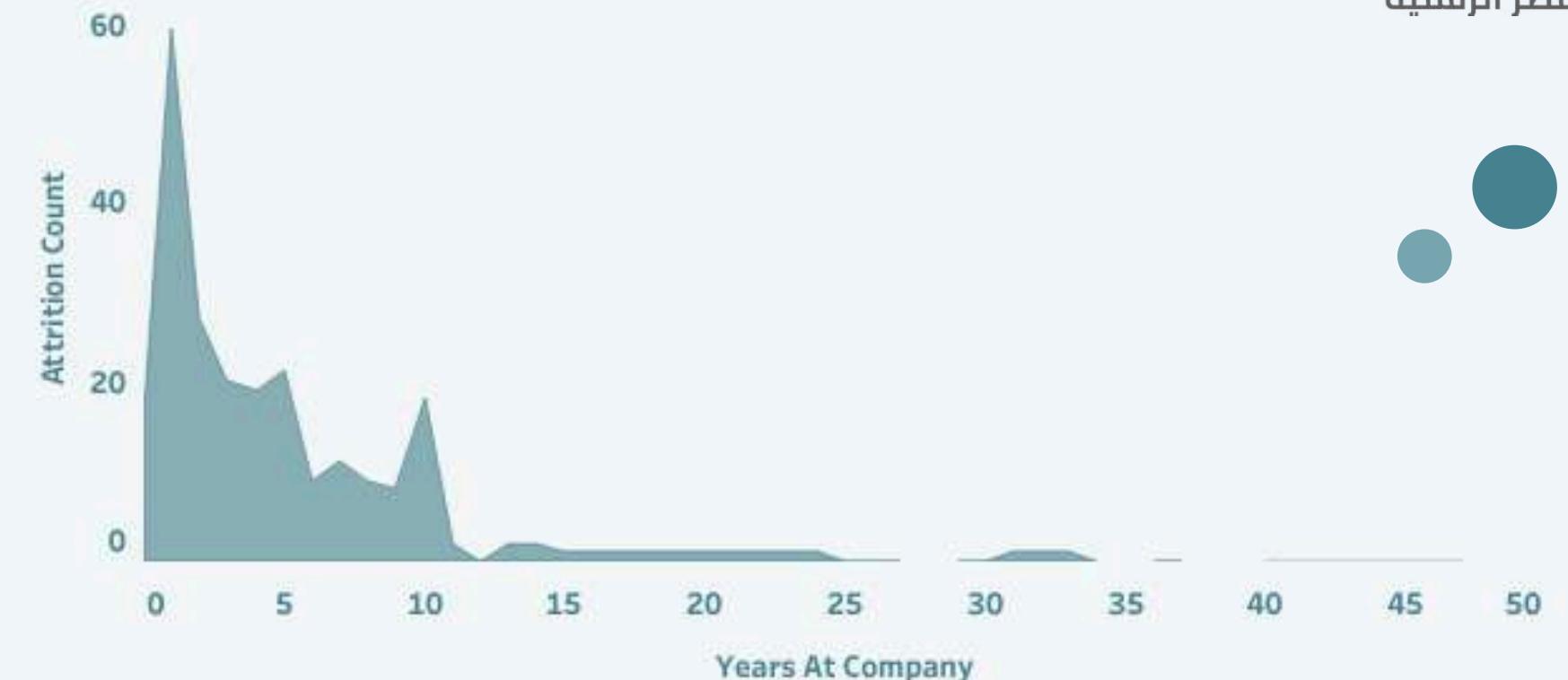


A higher number of male employees have left the organization compared to female employees.

### Attrition by Travel



The chart shows that employees who do not travel have the lowest attrition rate (12). Those who travel frequently have a slightly higher attrition rate (69), while the highest attrition rate is seen among employees who travel rarely (156).

**Attrition by Salary Slab**

**Attrition by Years At Company**


Employees in the lowest salary range (up to 5k) have the highest attrition rate. The attrition rate decreases to a moderate level for those earning between 5k-10k, and it drops slightly further for the 10k-15k salary range. The highest salary slab (15k+) has the lowest attrition rate.

Attrition is highest among employees with 0-5 years of tenure, remaining moderately high for those with 6-10 years. There is a slight decrease in attrition for employees with 11-15 years of service. Attrition stabilizes at a lower level between 16-20 years and is minimal for employees with over 21 years of tenure.

### Job Satisfaction Rating

Job Role	Job Satisfaction					Grand To..
	1	3	4	2	Grand To..	
Human Resources	10	13	13	16	52	
Sales Representative	12	28	23	21	84	
Research Director	15	27	22	16	80	
Manager	21	27	33	21	102	
Manufacturing Director	26	49	38	32	145	
Healthcare Representative	27	43	43	19	132	
Research Scientist	54	90	95	53	292	
Laboratory Technician	56	75	81	48	260	
Sales Executive	69	91	112	54	326	
Grand Total	290	443	460	280	1,473	

The Research Scientist role has the highest job satisfaction, with an average rating of 95 out of 100, while the Human Resources role shows the lowest, with an average of 13 out of 100. Roles like Sales Executive and Laboratory Technician tend to have high satisfaction levels, whereas positions like Manager and Research Director display more varied ratings.

### Department | Environment Satisfaction

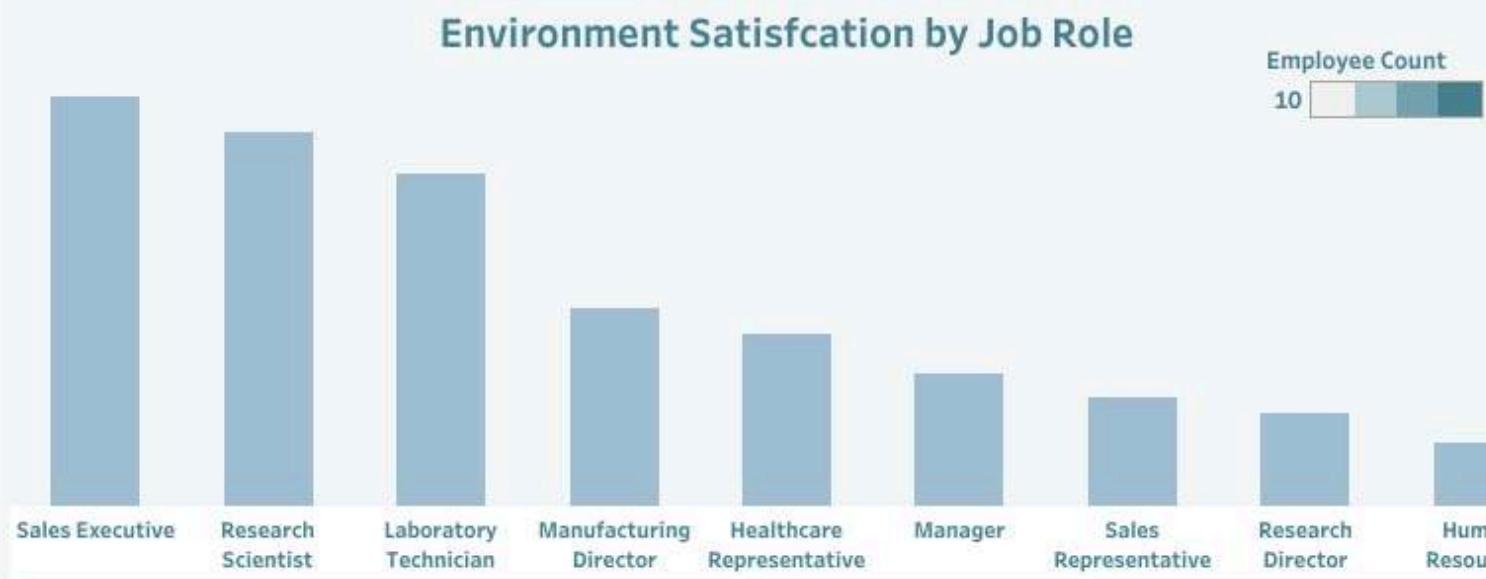


Research & Development has the highest satisfaction with its work environment. The Sales department experiences moderate satisfaction levels, while Human Resources has the lowest.

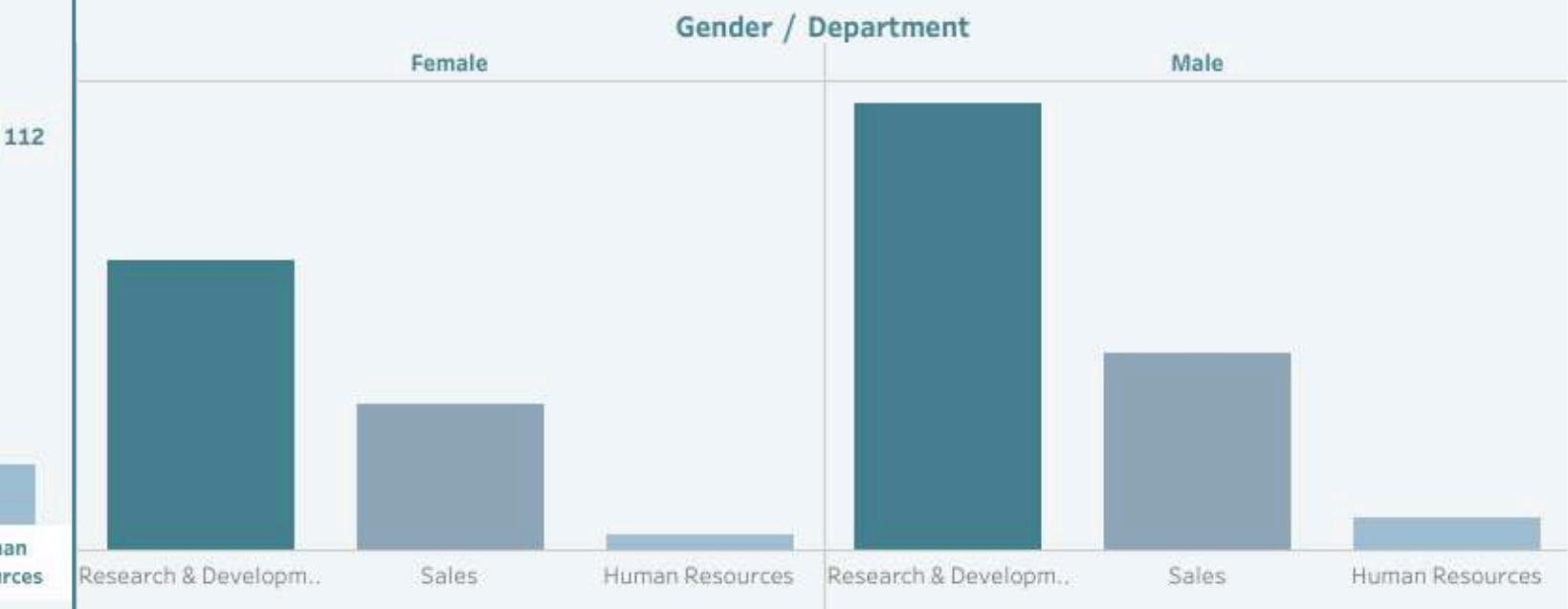
### Age | Training Times



Training times tend to decrease as age increases. The 18-25 age group receives the most training hours, while those aged 55 and above receive the least.



The Sales Executive role shows the highest level of environment satisfaction, while the Human Resources role has the lowest. Roles such as Research Scientist and Laboratory Technician display moderate satisfaction levels, whereas positions like Manager and Sales Representative have lower ratings.



The Sales department has the highest number of female employees, followed by Research & Development. In contrast, the Research & Development department has the highest number of male employees, with the Sales department following. Overall, Research & Development has the largest total employee count and a relatively balanced gender distribution.

# Links



Dataset :  
[https://www.kaggle.com/datasets/anshika2301/hr-analytics-dataset?select=HR\\_Analytics.csv](https://www.kaggle.com/datasets/anshika2301/hr-analytics-dataset?select=HR_Analytics.csv)

DEPI GP - Google Drive  
[Click here to visit the page.](#)

Dashboard :  
[https://public.tableau.com/shared/CPT9R44KK?:display\\_count=n&:origin=viz\\_share\\_link](https://public.tableau.com/shared/CPT9R44KK?:display_count=n&:origin=viz_share_link)



LinkedIn Accounts :  
Radwa : [linkedin.com/in/radwa-yahia](https://linkedin.com/in/radwa-yahia)  
Hesham : [linkedin.com/in/hesham-ahmed-wageeh-elsayed-528b08291](https://linkedin.com/in/hesham-ahmed-wageeh-elsayed-528b08291)  
Ebrahim : [linkedin.com/in/ebraheam-youssef-213575268](https://linkedin.com/in/ebraheam-youssef-213575268)

THANKS

