

HR ANALYTICS



Agenda

- Introduction
- Objectives
- Key questions
- Data analysis steps & Insights
- Recommendation
- Conclusion

Introduction

Effective HR management is essential for organizational success, focusing on talent recruitment, retention, development, and compliance. This project aims to enhance HR processes through data analysis, process improvement, or new tools, targeting recruitment, performance, engagement, or training to improve decision-making, employee satisfaction, and efficiency.



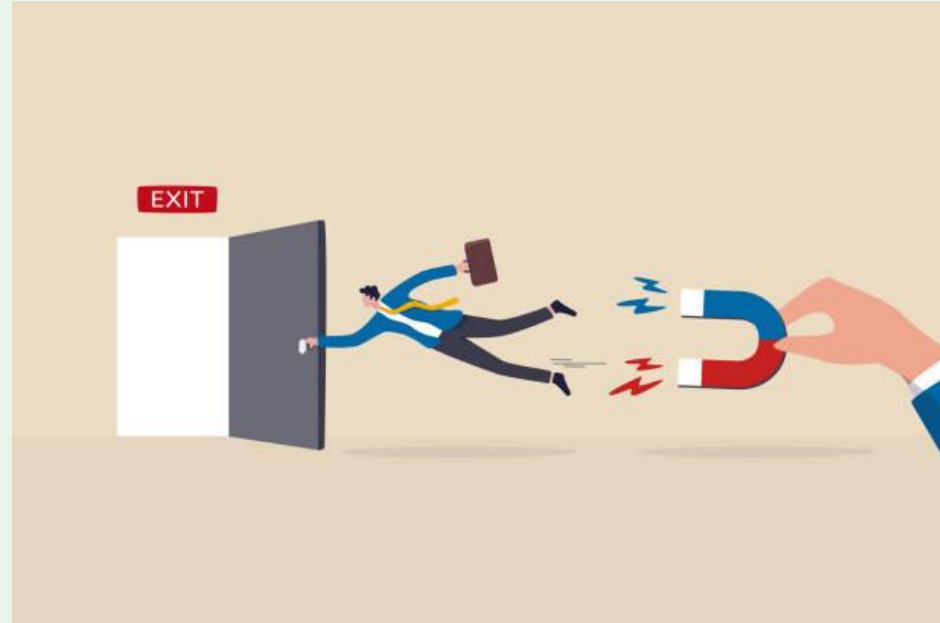
Objectives

Talent Attraction and Development

- Improve Recruitment Efficiency: Attract top talent at lower costs.
- Provide Ongoing Training: Build essential skills through continuous development programs.

Talent Retention

- Enhance Employee Satisfaction and Loyalty: Boost morale to retain key talent.
- Identify Key Retention Drivers: Understand the factors influencing employee retention.



Performance Improvement

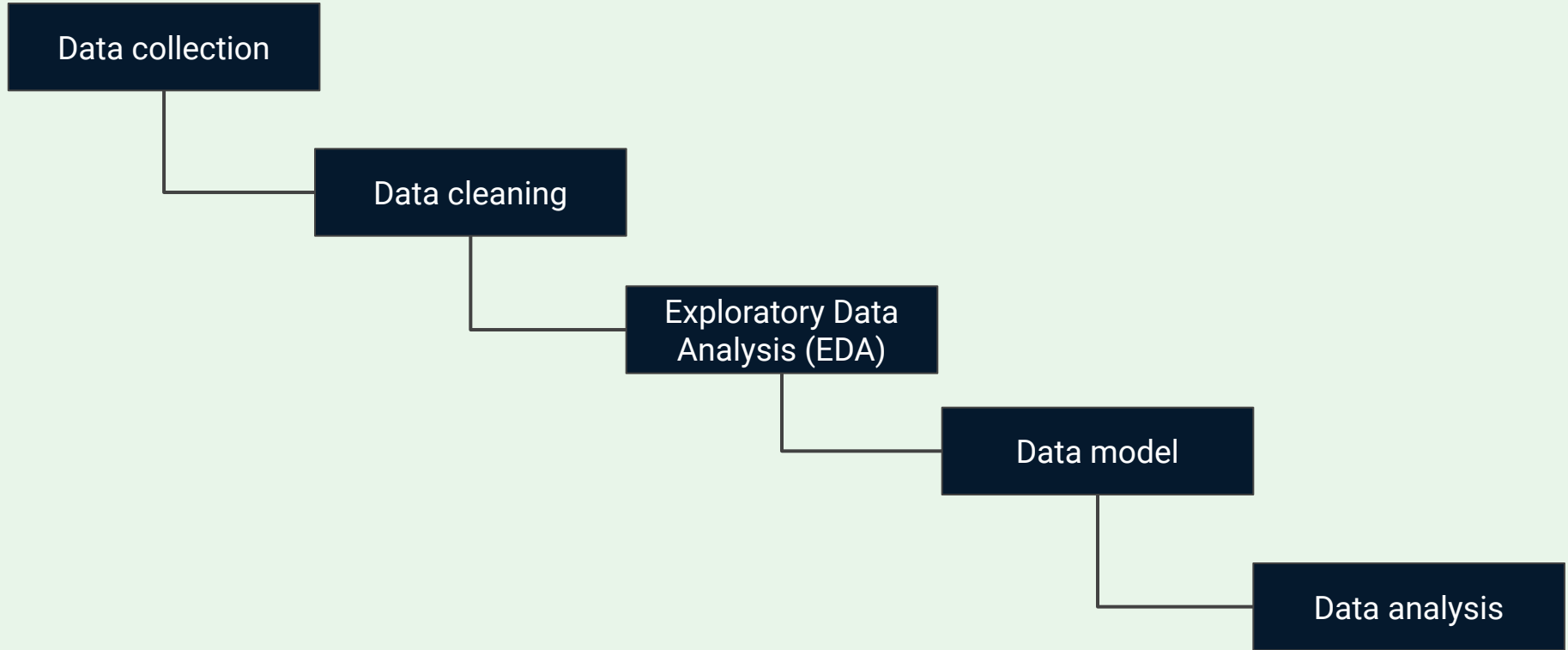
- Motivate Employees: Maximize potential and productivity.
- Align Personal and Company Goals: Ensure individual objectives support business goals.

Process Optimization

- Simplify HR Processes: Streamline operations to increase efficiency.
- Leverage Data for Informed Decisions: Use employee data to guide strategic actions.



Steps in the Analysis



Step 1: Data Collection and Process Review

- Collected data files in Excel format from the Kaggle website.

Step 2: Data Cleaning and Preprocessing

- **Data Volume:** Thousands of records representing employee data over a specific period.

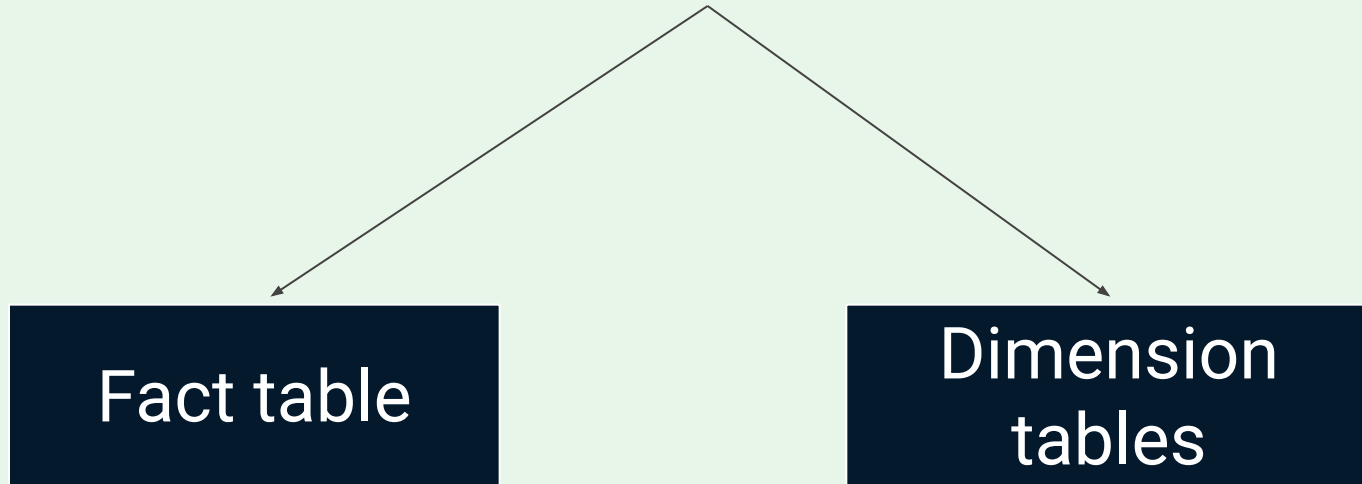
Step 3: Exploratory Data Analysis

- **Ensure Data Consistency:** Verify accuracy and formatting.
- **Address Missing Values:** Handle any gaps in the data.
- **Manage Duplicates:** Remove or resolve duplicate records.
- **Prepare for Analysis:** Organize and structure the dataset.



Step 4 : Data model

We divided the data into



Fact table (performance)

Column	Description
Performance id	Unique ID for individual performance reviews.
EmployeeID	Unique ID for employees, linked to DimEmployee.
Review Date	Date of the employee's performance review.
Environment Satisfaction	Rating for satisfaction with the work environment.
Job Satisfaction	Rating for satisfaction with job role.
Relationship Satisfaction	Rating for satisfaction with work relationships.
WorkLifeBalance	Rating for satisfaction with work-life balance.
SelfRating	Self-rated performance rating from employee perspective.
Manager Rating	Performance rating from manager's perspective.
Training Opportunities Within Year	Number of training opportunities in last 12 months.
Training Opportunities Taken	Number of training opportunities completed by employees.

Dimension tables

DimEmployee

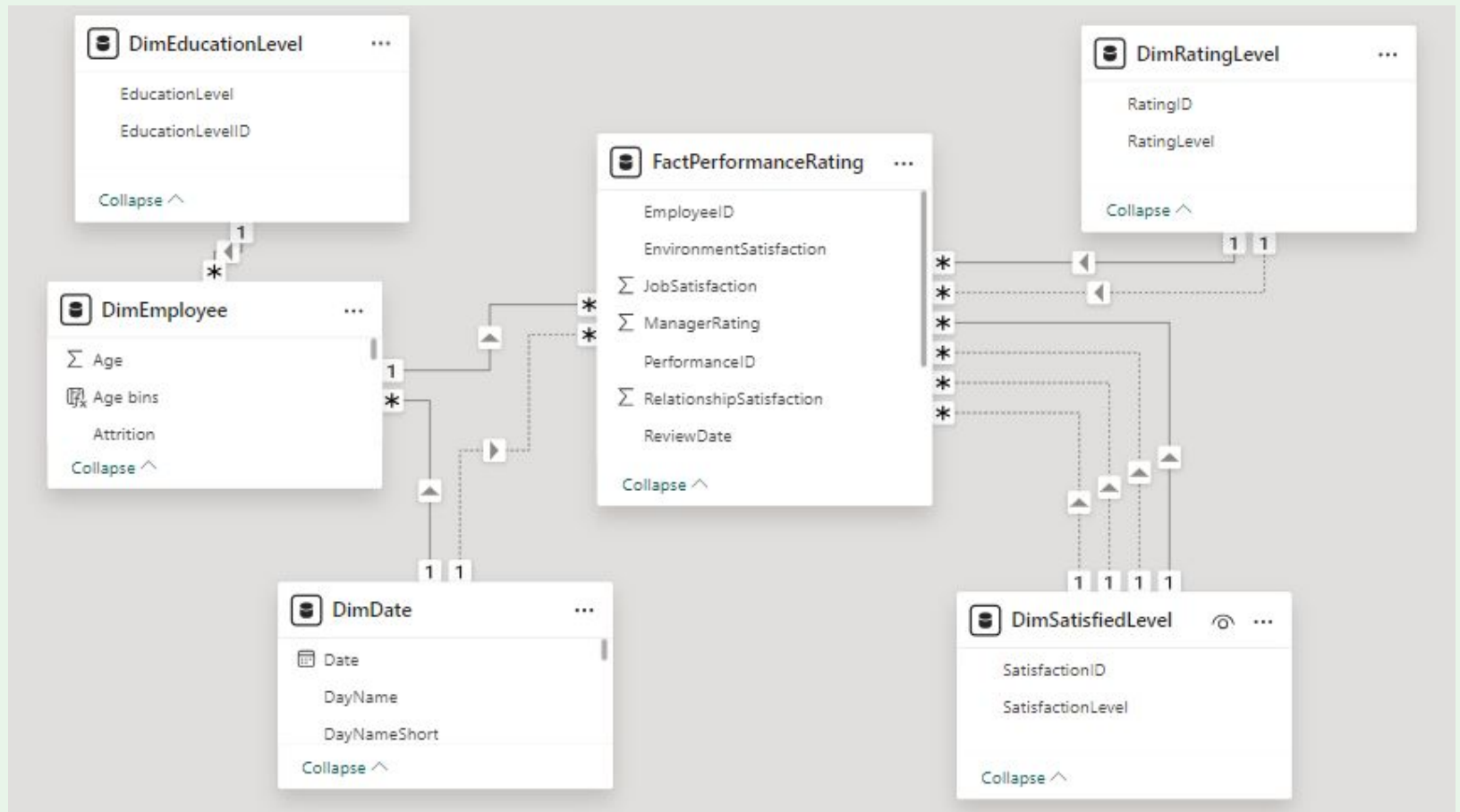
DimEducationLevel

DimRatingLevel

DimSatisfiedLevel

DimDate

Data model : Snowflake schema



Step 5 : Data Analysis

Recruitment Analysis: Analyze hiring trends and time-to-hire costs.

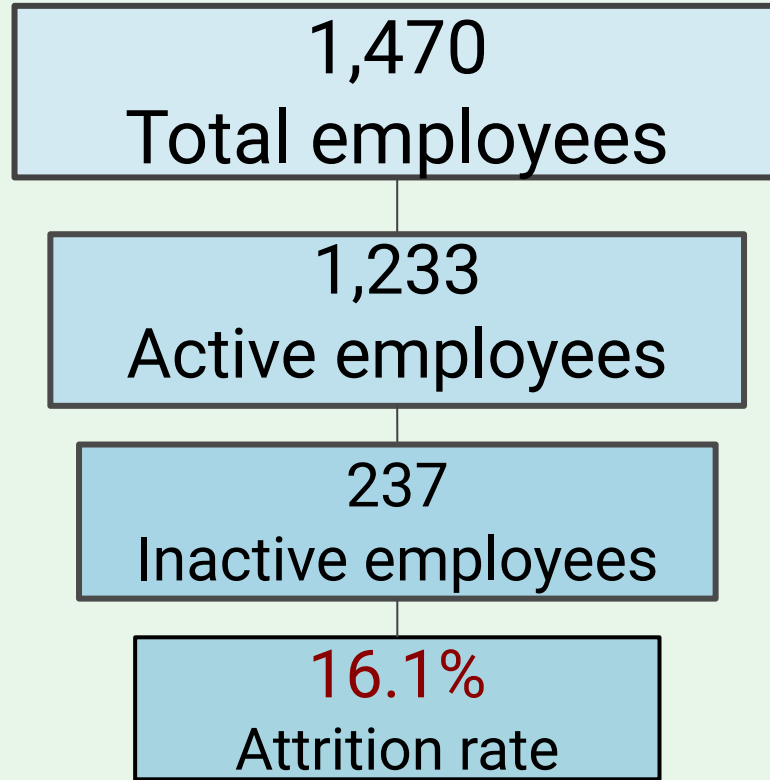
Employee Performance: Identify high performers and development needs.

Turnover Analysis: Investigate turnover causes like dissatisfaction and stagnation.

Engagement and Satisfaction: Identify improvement areas from survey results.

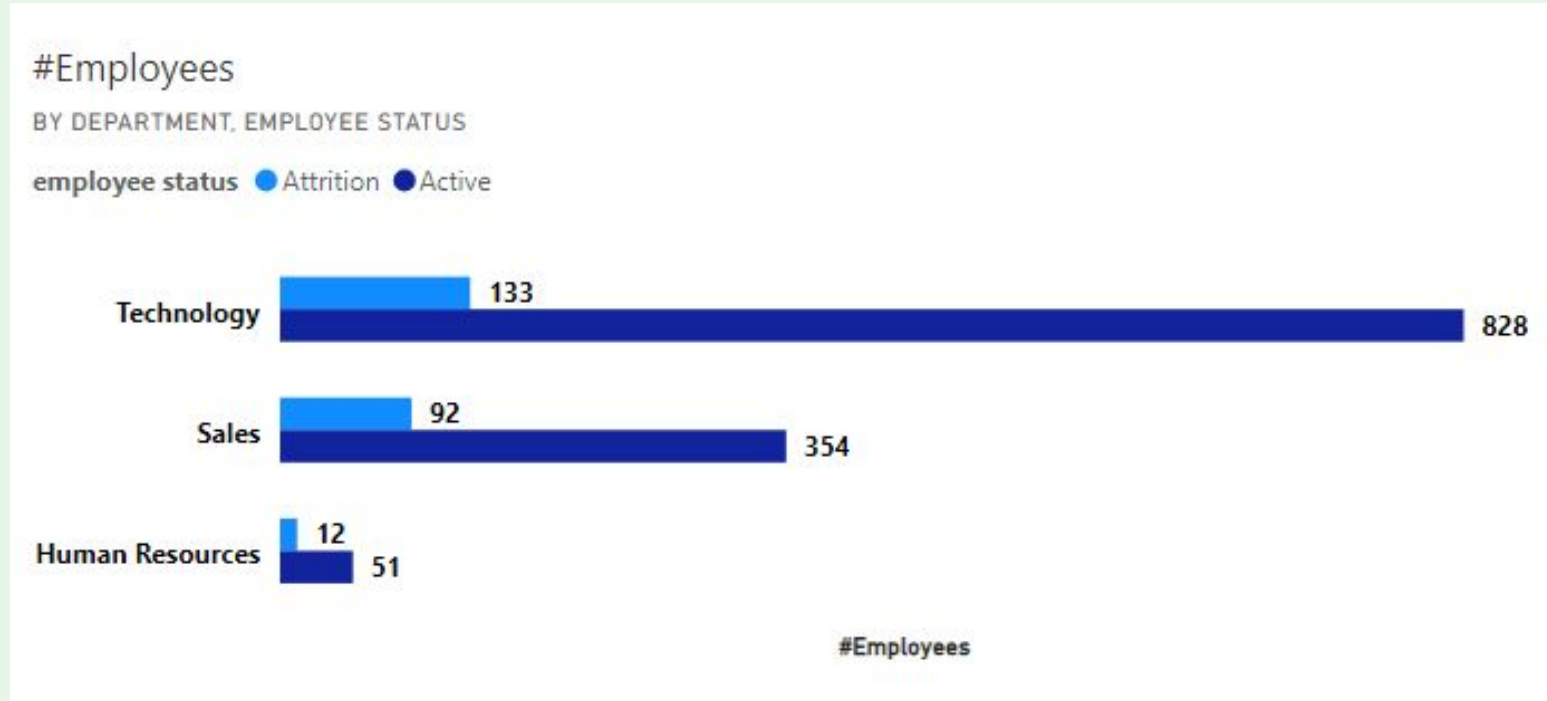


Employees overview.



- As we can see, **the Attrition rate** for employees leaving the organization is **16%**

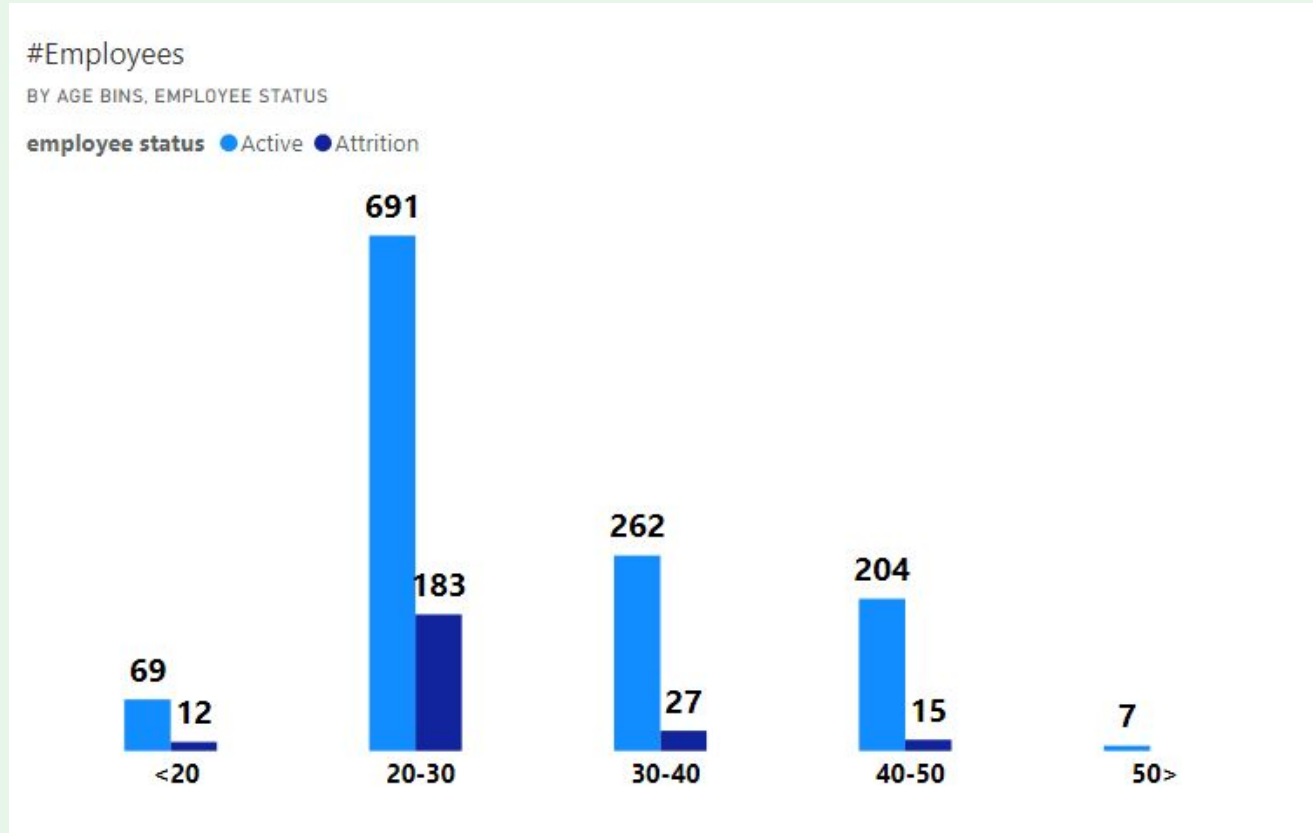
Which departments have the highest and lowest employee turnover?



- **Largest department:** The technology department has the highest number of employees.
- **Highest turnover:** The sales department has the highest employee turnover.
- **Lowest turnover:** The HR department has the lowest employee turnover.

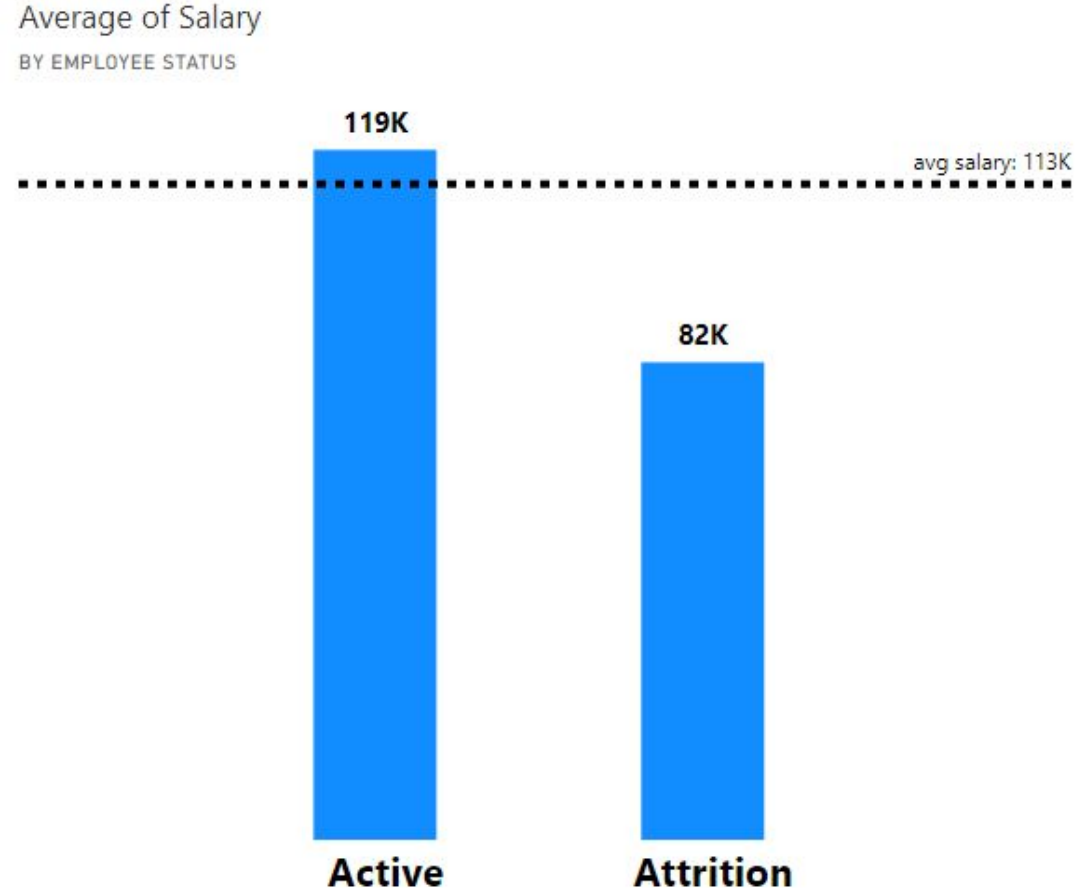
Is there a relationship between age group and turnover rate?

- **Largest age group:**
Employees aged 20-30 are the largest group.
- **Highest turnover:**
The 20-30 age group also has the highest turnover.
- **Lowest turnover:**
Employees over 50 have the lowest turnover rate.



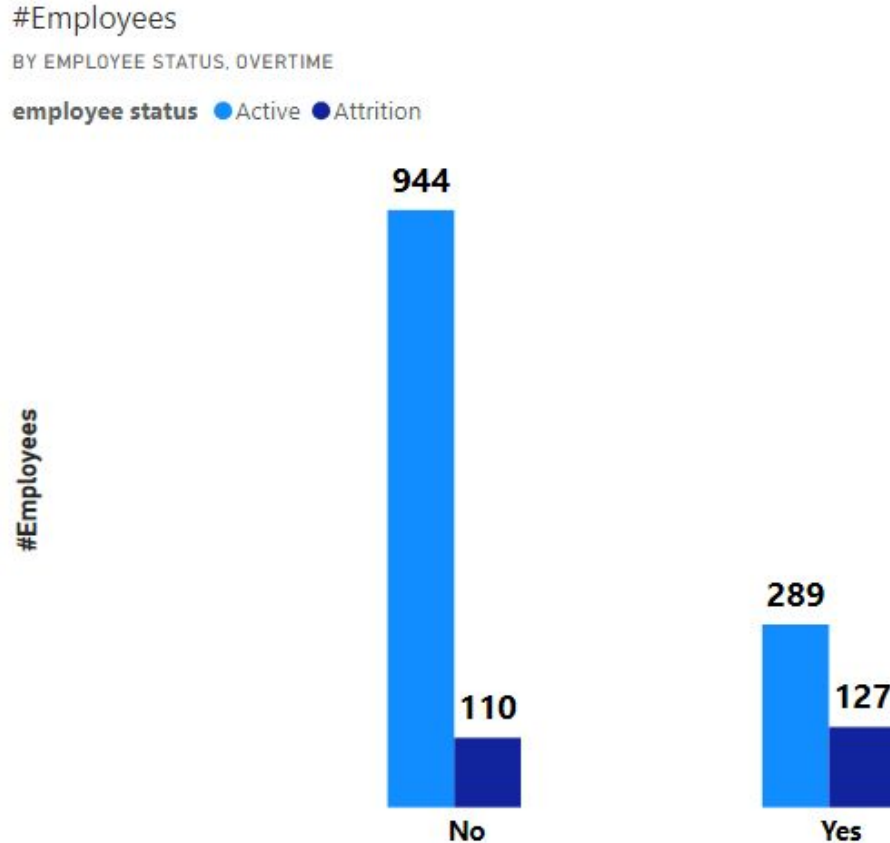
What is the average salary by employee status?

- Active Employees:
\$119,000
- Inactive Employees:
\$82,000
- Avg salary : **\$113,000**
- Employees who left were paid below the average. This indicates a link between salary and employee turnover.



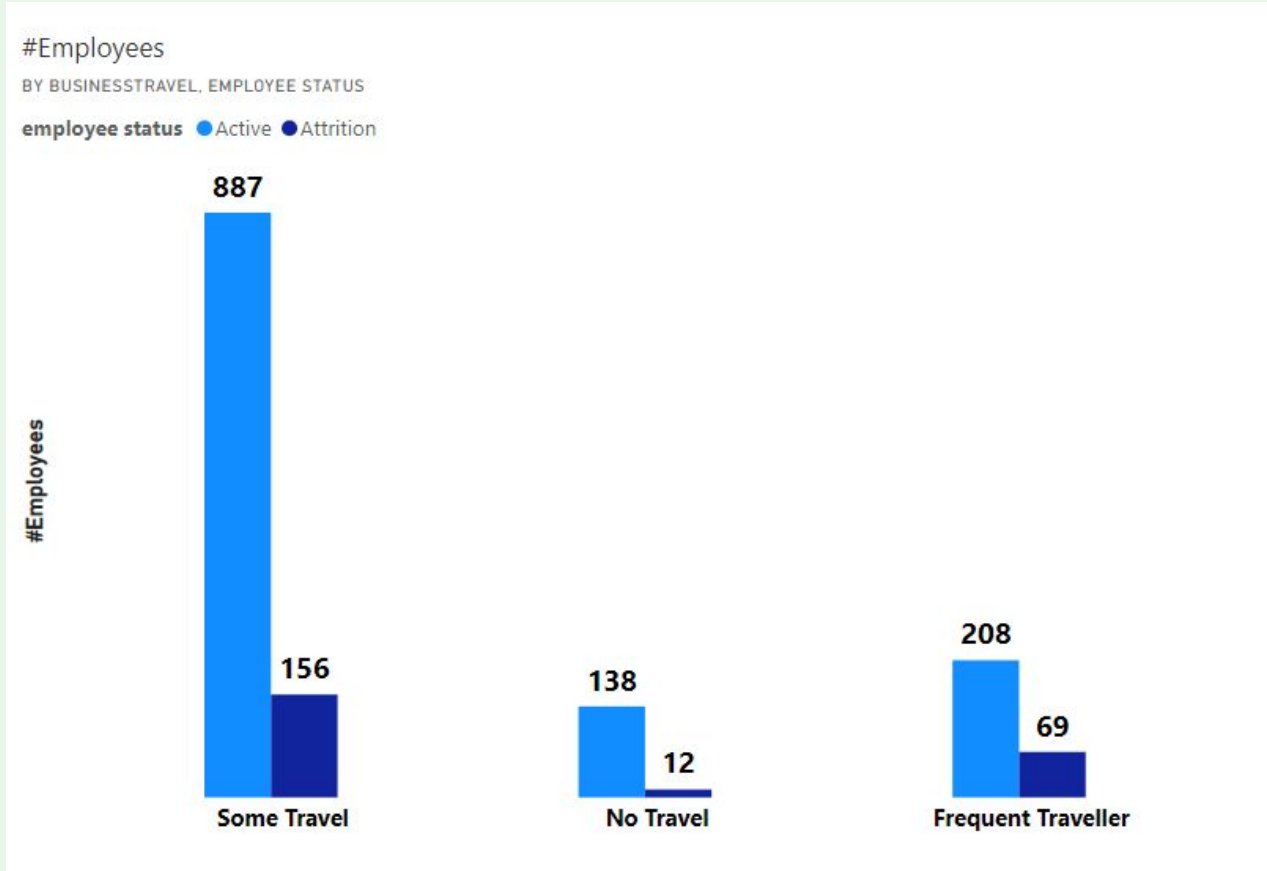
What is the impact of overtime work on employee turnover?

- Data shows that employees who work overtime are more likely to leave their jobs than those who do not.
- **30.5%** of employees who worked overtime left their jobs.



Does business travel affect turnover?

- Employees who travel frequently have the highest turnover rate, while those who do not travel for work have the lowest turnover. Employees who travel occasionally fall in between.



Recommendation

Improving Work Environment and Employee Retention:

- **Understand Resignation Reasons:** Conduct exit interviews to identify real causes.
- **Evaluate Incentives:** Ensure fair rewards, including non-financial benefits like training and development opportunities.
- **Enhance Work Environment:** Create a positive and supportive atmosphere, fostering good relationships between employees and management.
- **Offer Career Development:** Provide clear promotion paths and growth opportunities.

Managing Overtime:

- **Assess the Need for Overtime:** Set limits and explore alternatives like improving efficiency or hiring more staff.
- **Reward Overtime:** Compensate with extra pay or additional time off.
- **Support Employees:** Offer stress management programs and work-life balance initiatives.

Handling Business Travel:

- **Evaluate Travel Needs:** Set limits on travel days and offer appropriate logistical support.
- **Provide Work Flexibility:** Allow remote work when needed.
- **Offer Guidance and Emotional Support:** Provide mentoring programs and mental health support for traveling employees.

Strengthening Employee Loyalty:

- **Conduct Employee Surveys:** Regularly measure employee satisfaction.
- **Create a Youth-Friendly Culture:** Encourage innovation and provide a flexible, enjoyable work environment.
- **Maintain Open Communication:** Engage employees regularly and listen to their feedback.

conclusion

creating a positive work environment and fostering employee loyalty are crucial for organizational success. By building a strong community, offering flexible work options, recognizing achievements, managing overtime effectively, and supporting employee development, we can boost satisfaction and retention. Additionally, providing fair travel allowances and training helps employees feel valued during business trips.

These initiatives reduce turnover rates and foster a motivated workforce committed to the company's goals, leading to a more productive and engaged team.

Thank you for your time. We would like to Appreciate our amazing team (Group 3) who worked hard on this project:

- **Mahmoud Mohamed Hanafy**
- **Poula Tarek Farid**
- **Yamen Emad Eldeen Masoud**
- **Kareem Qotp Saad**
- **Omar Mohamed Salem**
- **Asmaa Mokhtar Hassan**
- **Lobna Ali El-Dien Hussien**

A person wearing a light blue dress shirt and a dark blue necktie is holding a small, rectangular white card with their right hand. The card is held up towards the camera, and the words "Thank you!" are written on it in a dark blue, cursive script. The background is a plain, light-colored wall.

Thank you!