

# TECHNOCOLABS SOFTWARES

## Internship Mini-Project

**i** We completed this mini-project at Technocolabs Softwares which honed our skills and bolstered our experience for real-time problems. The technologies majorly used are GitBash/Git CLI/Linux, MS Excel, Python and Tableau.

## OVERVIEW

**i** A comprehensive analysis of the attrition at ACME Corporation.

This project aims to provide insights into the factors influencing employee attrition and predict which employees will likely leave the company. Acme Corporation, a leading tech company, faces a significant challenge with employee turnover. The HR department is concerned about the increasing attrition, which negatively impacts team dynamics, project continuity, and overall company morale. Acme Corporation wants to leverage data analytics and machine learning to understand the factors influencing employee turnover and predict which employees might leave soon.

It's to be noted that previous report has also been used as a reference for an in-depth analysis.

## The Objective

**i** The purpose is to find a relation between different domains of the dataset and attain reasonable conclusions that can be further worked upon.

Need #1: to identify the reasons for attrition

Need #2: reason out the development of staff to reduce attritions

Need #3: Analyse who is more likely to quit

## The Opportunity

**i** Opportunity to perform an in-depth analysis and execute tasks accordingly

Goal #1: Data Exploration and Visualization

Goal #2: Descriptive Analytics

Goal #3: KPI Analytics

Opportunity: Learn to Use Power BI

## The Solution and Execution Strategies

**i** Refer to visualisations made in Power BI to comply with the following inferences and recommendations. It is recommended that you follow Key Value Influencers to target the issues at various departments.

Based on the analysis, several key recommendations can be made:

1. **Focus on Sales Department:**
  - Implement targeted retention strategies for the Sales department, such as stress management programs and competitive compensation packages.
  - Consider mentorship and career development initiatives to reduce turnover among junior sales employees.
2. **Enhance Work-Life Balance:**
  - Introduce flexible work options and promote a healthy work-life balance to improve job satisfaction and retention.
  - Regularly assess work-life balance metrics and adjust policies accordingly.
3. **Improve Career Progression:**
  - Create clear career paths and provide regular promotions to retain high-performing employees.
  - Invest in training and development to enhance skills and provide growth opportunities.
4. **Competitive Compensation:**
  - Ensure competitive pay scales to retain talent, particularly in high-stress roles.
  - Regularly review and adjust compensation packages based on industry standards and employee feedback.
5. **Regular Monitoring and Feedback:**
  - Continuously monitor key value influencers and use the decomposition tree for detailed analysis.
  - Encourage regular employee feedback to identify issues early and implement corrective measures.

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### Conclusion

The Power BI dashboard provides valuable insights into employee dynamics at Acme Corporation, highlighting critical areas for improvement in work-life balance, job satisfaction, and attrition. By focusing on key value influencers and using the decomposition tree for root cause analysis, the organisation can implement effective strategies to enhance employee retention and satisfaction.

The previous report offers further context and supports the findings, emphasizes the importance of targeted interventions in the Sales department and improvements in work-life balance and career progression.

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This detailed analysis provides actionable insights and recommendations to help Acme Corporation reduce attrition and improve overall employee engagement and satisfaction.

## OUR PROPOSAL

**i** During this case study Sales department was particularly highlighted.

Acme shares high reviews on GlassDoor and AmbitionBox. But the current rate of attrition has understandably reduced the trust in youth and the current average rate of attrition 16.12% is affected by some key factors along with many others.

The key factors though might not seem to be related but have a lasting impact on any company and the sentiments of employees, and attrition acts as fuel to fire. During my study we found these factors to impact mostly the Sales department. The analysis suggests distress among employees in the Sales department. Furthermore, unexpectedly the trend doesn't seem to follow any gender or marital status bias. It is also to be mentioned the relation between hourly rates, daily rates, monthly rates, total working experience, years in current role and monthly income is also a little ambiguous irrespective of departments. Therefore, it is highly recommended that Acme officials work on administrative as well as interpersonal levels to regain the confidence of youth.

Kindly note that although out of 237, 122 resignations supposedly represent they will still impact the organisation and have been considered, considering 51.44% of 237 is not a small amount and the data might have been falsified under

pressure from superiors. Therefore, it is highly recommended that Key Value Influencers are studied in detail and actions are taken accordingly.

## Rationale

**i** *Description of following this pattern.*

Research: Provided me with ample opportunities to study and delve deeper into the data along with honing my analysis skills.

Each step of analysis led me to conclusive details of the dataset.

Alignment with the Mission: The reason and departments affected by attrition became clearer by effectively representing data using Power BI.

Current resources/technology: MS SQL Server, MS Power BI, MS Word (in order of timeline)

## Technical/Project Approach

**i** *To complete the project, I have primarily focused on using M Power BI.*

To complete the given project, I primarily relied on tools provided by Power BI and analysed how I can improve my approach to analysis, therefore I utilised ample amount of time honing my Power BI skills and learning more

After that, I dived right into the problem statement as was required and included the following points:

### 1) **Dashboard Components:**

#### 1. **Average Work-Life Balance Rating:**

- Display the average work-life balance rating across the organization.

#### 2. **Average Job Involvement:**

- Show the average level of job involvement among employees.

#### 3. **Average Relationship Satisfaction:**

- Present the average satisfaction level with workplace relationships.

#### 4. **Distribution of Overtime Work:**

- Visualize the distribution of employees who work overtime vs. those who don't.

To achieve the aforementioned successfully I followed the following instructions as supervised:

**1. Review the Work-Life Balance Rating:**

- Begin by examining the average work-life balance rating displayed on the dashboard. Identify any trends or discrepancies in work-life balance across different departments or employee groups.

**2. Assess Job Involvement:**

- Analyze the average job involvement metric to understand how engaged employees are in their work. Look for any patterns or correlations between job involvement and other factors such as department or job role.

**3. Evaluate Relationship Satisfaction:**

- Review the average relationship satisfaction score to gauge the quality of workplace relationships. Identify any departments or teams where relationship satisfaction may be lower and investigate potential causes.

**4. Examine Overtime Work Distribution:**

- Explore the distribution of employees who work overtime compared to those who don't. Determine if there are any departments or roles where overtime work is particularly common and assess its impact on work-life balance and job satisfaction.

**5. Identify Areas for Improvement:**

- Based on the analysis of work-life balance, job involvement, relationship satisfaction, and overtime work distribution, identify areas for improvement. Consider implementing policies or initiatives to promote better work-life balance and employee engagement.

**6. Act:**

- Use the insights gained from the dashboard to develop strategies for enhancing work-life balance and engagement within the organization. Collaborate with relevant stakeholders to implement changes and monitor their effectiveness over time.

**7. Regular Monitoring:**

- Continuously monitor work-life balance and engagement metrics using the dashboard to track progress and identify any emerging issues. Adjust strategies as needed to ensure ongoing improvement and employee satisfaction.

In order to achieve the tasks at hand, I used Scatter Chart to show distribution on the basis of department, average relationship satisfaction, work-life-balance, job involvement, overtime and count of attrition, Key Value Influencers to analyse how these variables are affected under different conditions. I also added a Decomposition Tree to give a quantitative measure of how data is distributed among aforementioned variables with respect to attrition, hence providing a quantitative insight into the dataset. To further enhance the user experience, I have added a Q&A visual which gives me details of dataset as required by the user. In addition to that I have also drawn a comparison line chart to give cursory outlook on trends of attrition. The following figures show what the client can expect.

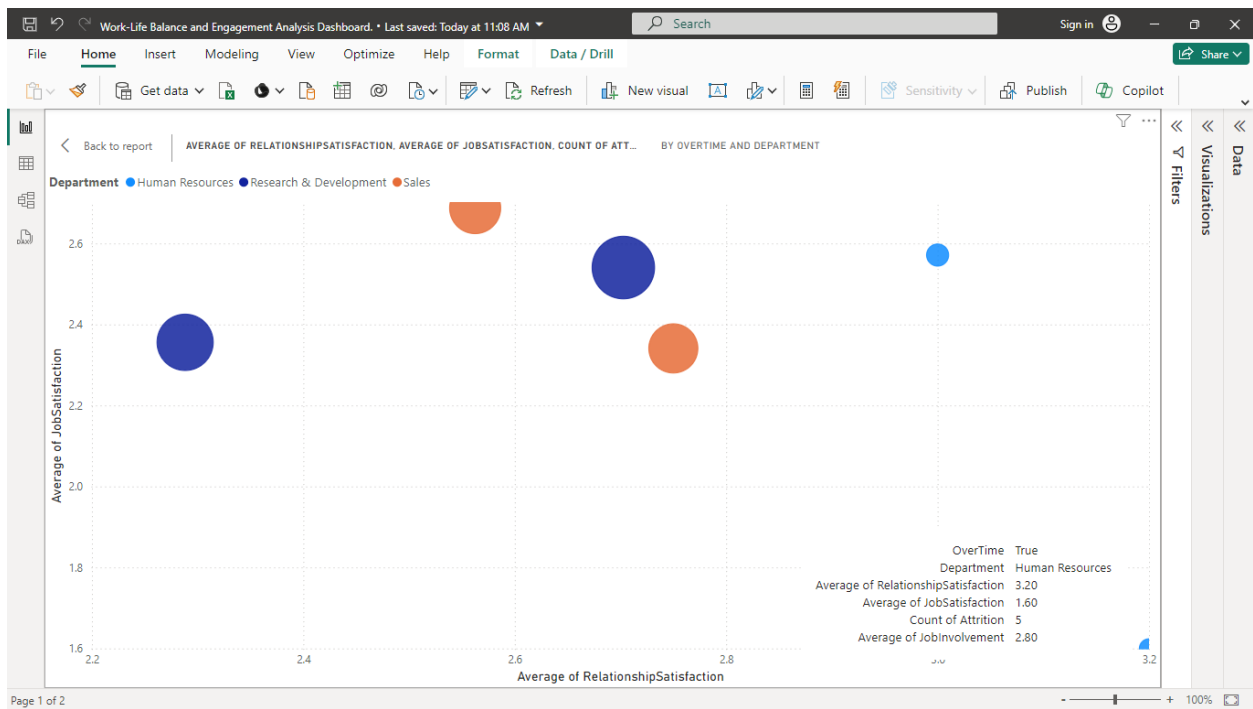


Figure 1: Scatter Chat for Attrition True

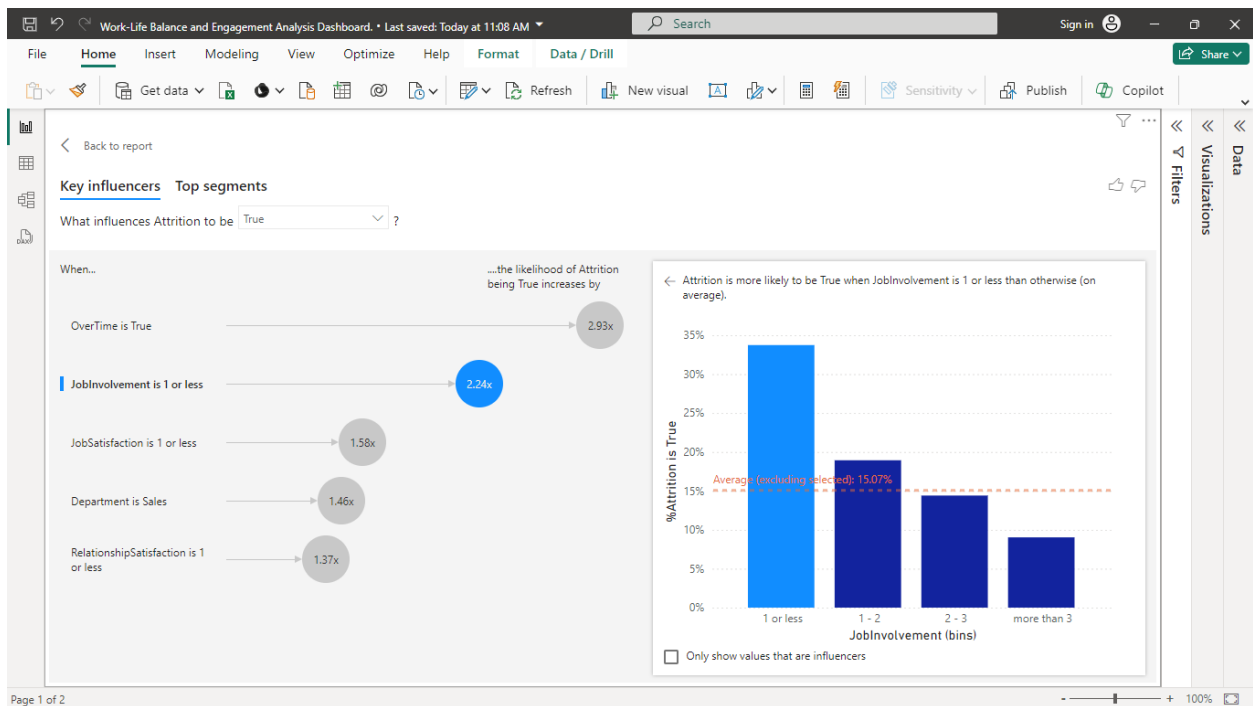
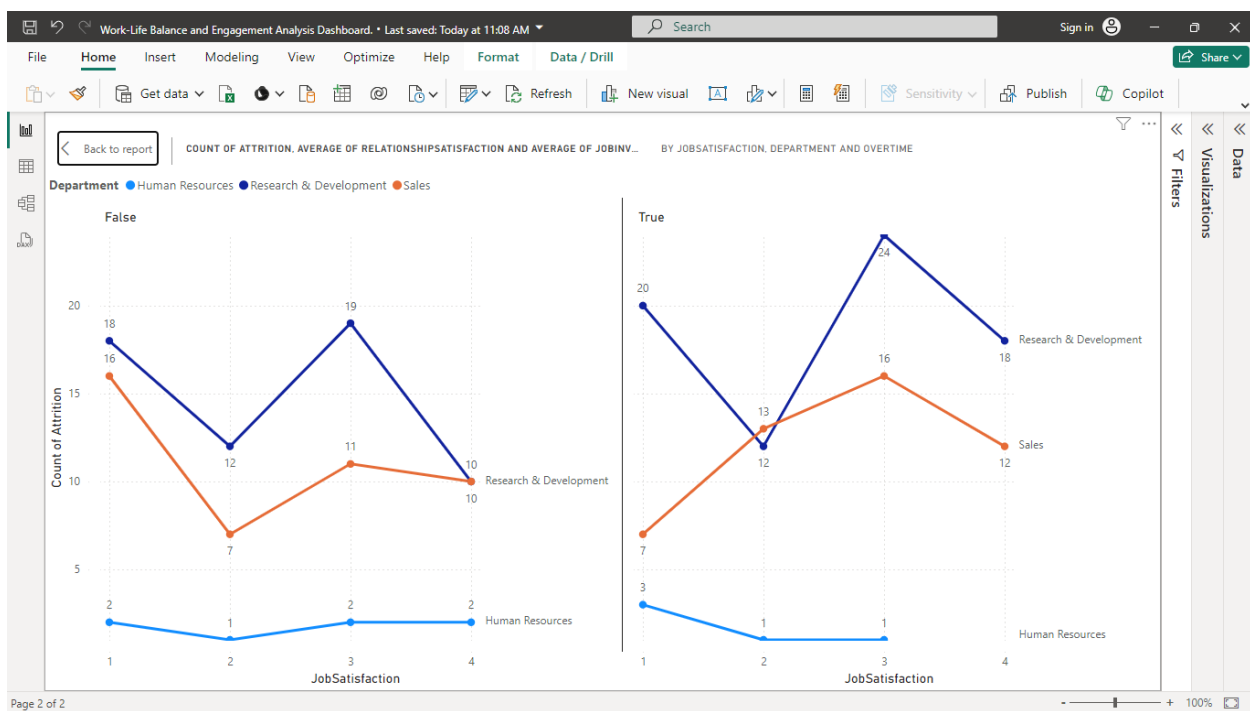
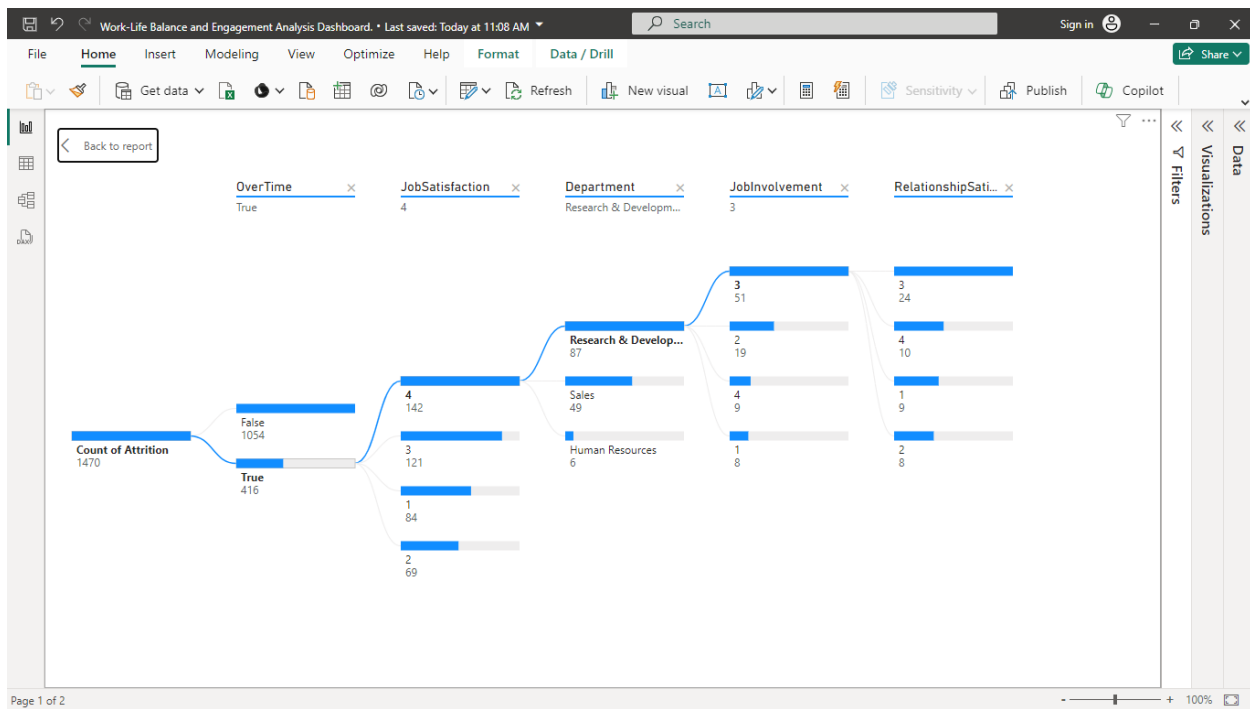


Figure 2: Key Value Influencers



## Key Insights

### Key Components of the Dashboard

#### 1. Key Value Influencers:

- Identifies factors that significantly influence employees' relationship satisfaction and attrition.
- Highlights relationships between various employee metrics such as job involvement, job satisfaction, and work-life balance.

#### 2. Decomposition Tree:

- Breaks down complex data into hierarchical levels, helping identify the root causes of employee turnover and dissatisfaction.
- Facilitates a deep dive into data segments to uncover detailed insights.

#### 3. Visualizations and Metrics:

- Graphs and charts illustrating attrition rates, job satisfaction, and overtime across different departments and job roles.

The above visuals successfully demonstrate dissatisfaction among Sales employees. A deep analysis can be achieved by studying each key value influencer.

## Resources



### *List of Resources Accessible During the Project*

- GitHub Repository
- Technocolabs Softwares GitHub repository to Download Dataset From
- Unhindered Support from Technocolabs Softwares
- Python
- MS Excel
- MS SQL SERVER
- MS Power BI
- MS Word
- WSL2

## Timeline for Execution

### Details of Timeline of Execution

Key project dates are outlined below. Dates are best-guess estimates and are subject to change until a contract is executed.

### The following table shows how the tasks were divided and how they were executed.

Description	Start Date	End Date	Duration
Project Start	June 14, 2024	June 14, 2024	
Milestone 1: Understanding and Practicing More Tools of Power BI	June 14, 2024	June 15, 2024	7 Hours
Milestone 6: Making Visual Representation of Data with Power BI	June 14, 2024	June 15, 2024	1.5 Days
Milestone 7: Writing Detailed Project Report and Pushing it to GitHub	June 15, 2024	June 16, 2024	1.5days
Project End	June 16, 2024	June 16, 2024	

## Supplied Material

The following materials were supplied by Technocolabs Softwares beforehand along with the problem statement through GitHub.

Materials Supplied by Technocolabs Softwares	Due Date*
Dataset of Acme's Employee Detail	June 1, 2024
Instructions for Dashboard Components	June 13, 2024
Task Instructions	June 13, 2024

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