

Unlocking Workforce Potential Through People Analytics

PRESENTATION

Data, Driven Solutions and
Business Decisions



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Understanding our Workforce



Part 2:

Performance and Development



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Employee Engagement and Experience



Part 4:

Attrition and Retention Strategies

THIS IS OUR PROJECT

This project delves into
employee data to uncover
valuable insights for
effective decision making

INTRODUCTION

WHY?

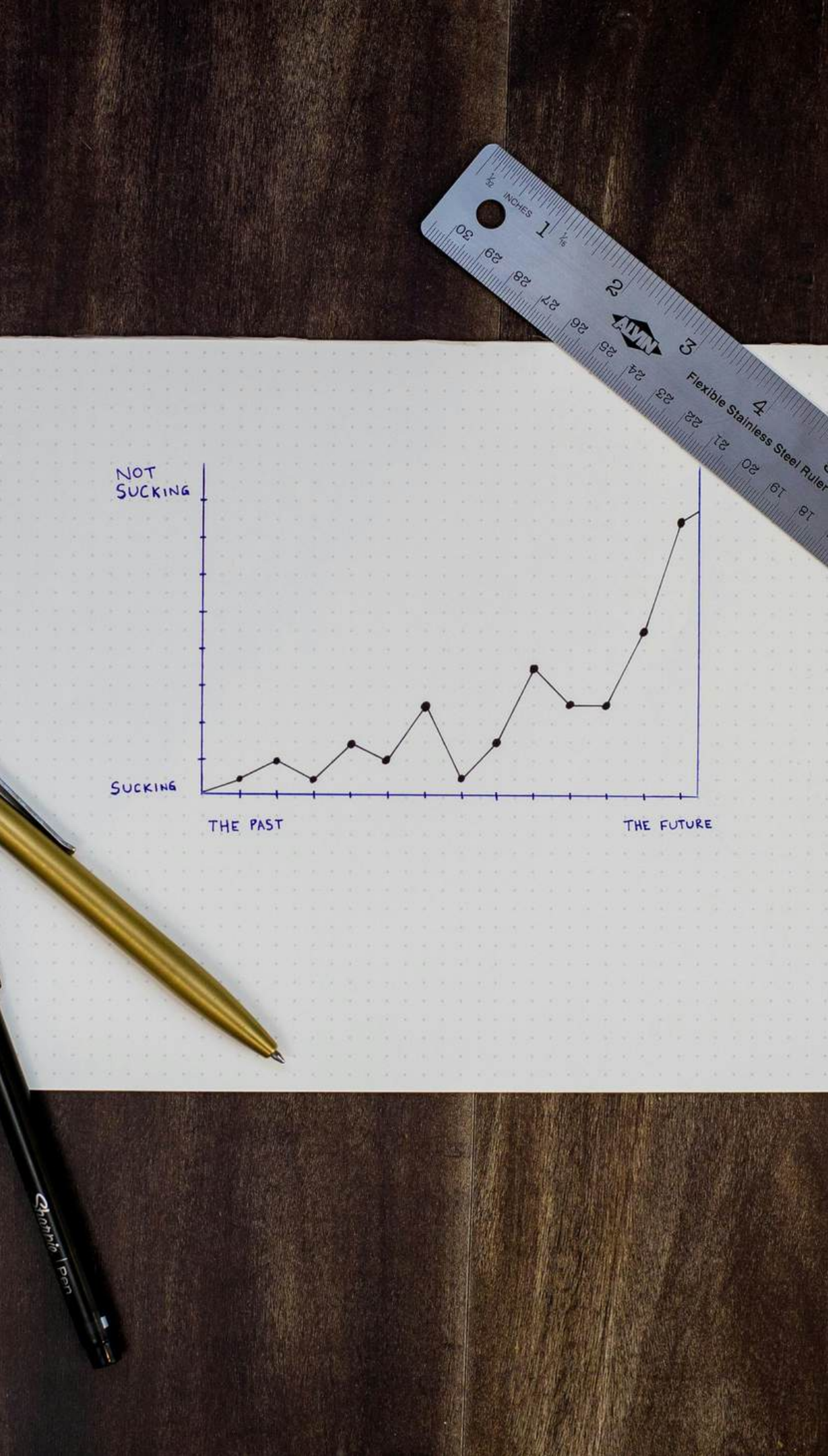
Utilizing a combination of advanced data analysis techniques in Python, R, and SQL. The project examines various aspects of the employee lifecycle

PRESENTATION



WHAT ARE OUR OBJECTIVES

**Improve workforce
planning and decision-
making**



WHAT ARE OUR OBJECTIVES

**Enhance employee
engagement and retention**



WHAT ARE OUR OBJECTIVES

Boost Performance and Productivity



WHAT ARE OUR OBJECTIVES

**Develop a data-driven
culture**

Part 1:

Extending beyond individual metrics

Reduced Employee
Turnover



Enhanced Employee
Engagement



Improved workforce
productivity



Understanding our Workforce

WORKFORCE VALUE

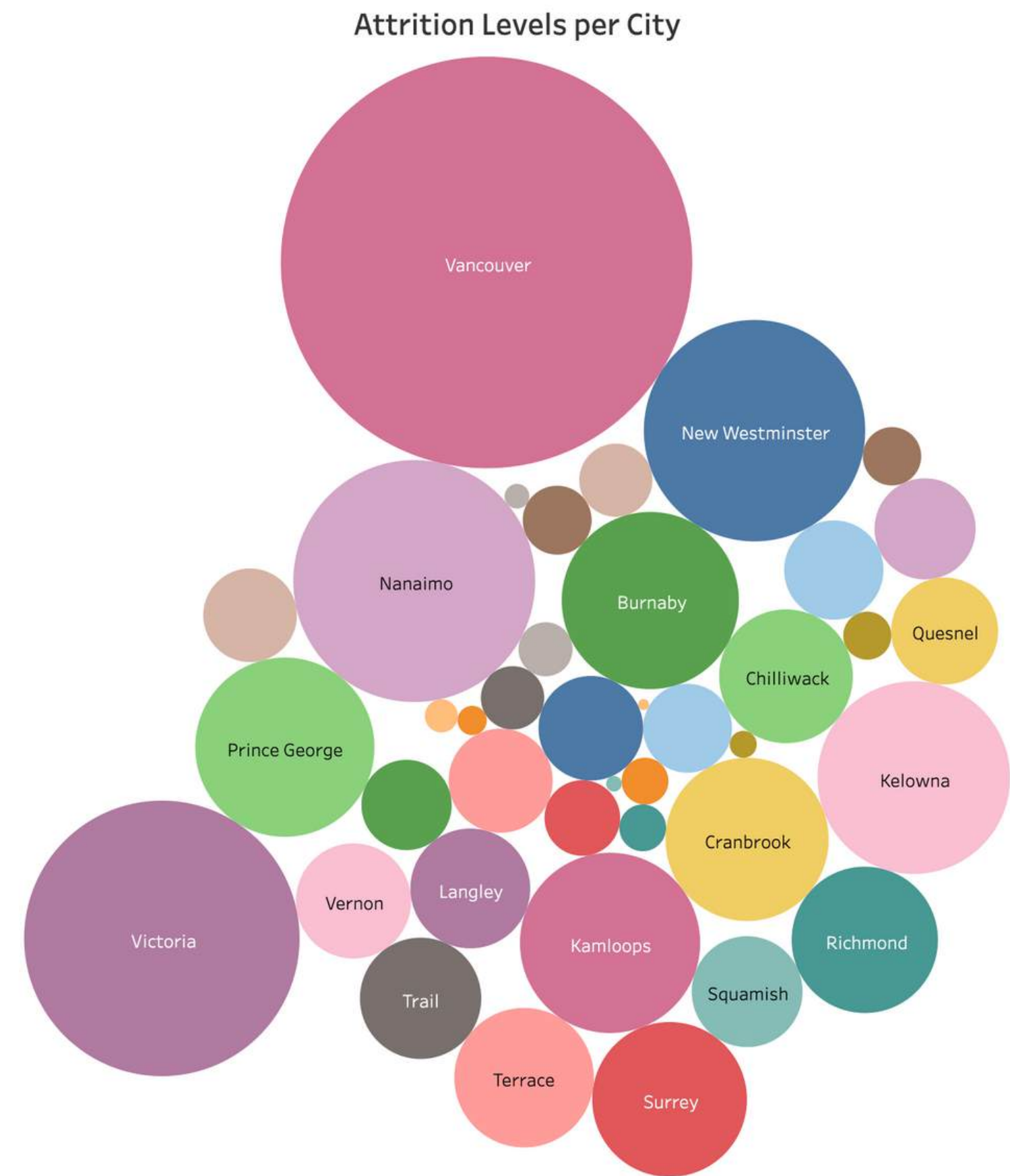
City Visuals

Vancouver and surrounding areas experience the highest attrition levels:

The large size of the bubbles for Vancouver, Burnaby, New Westminster, and Surrey suggests a significantly higher attrition rate compared to other cities. This could be due to various factors such as higher cost of living, competitive job market, or specific challenges within those locations.

Smaller cities generally show lower attrition

The large size of the bubbles for Vancouver, Burnaby, New Westminster, and Surrey suggests a significantly higher attrition rate compared to other cities. This could be due to various factors such as higher cost of living, competitive job market, or specific challenges within those locations.



The analysis of attrition levels across different cities reveals a clear disparity,

With larger urban centers like Vancouver and surrounding areas experiencing significantly higher employee turnover compared to smaller cities

Location Specific Factors

Crucial Role in Employee Retention.



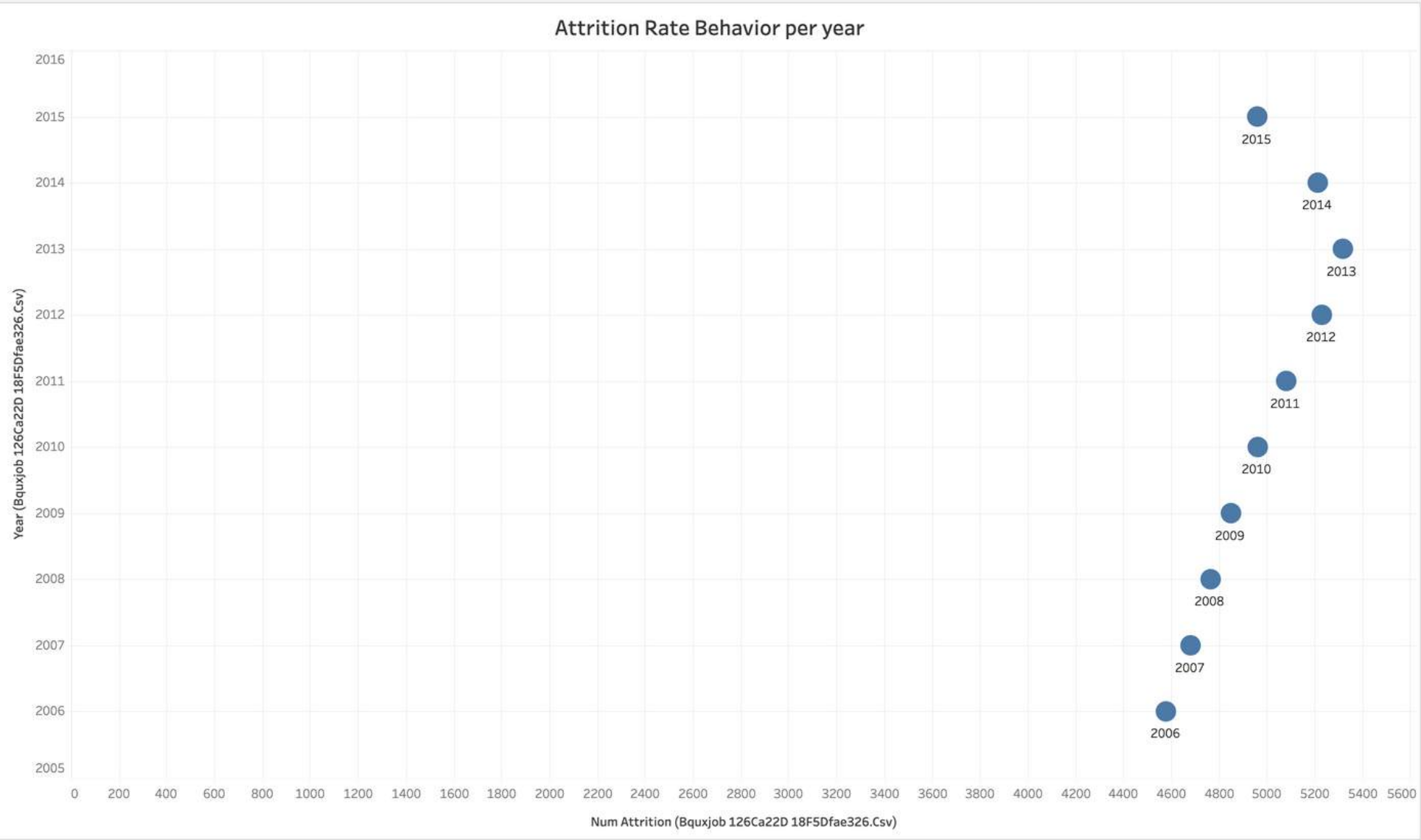
Rate Behavior

Attrition numbers have been increasing over time

The scatterplot shows an upward trend, indicating that the number of employee attritions has generally increased from 2006 to 2015. This suggests a potential challenge in employee retention that needs further investigation.

Possible acceleration in attrition rate in recent years

The points seem to be more spaced out in the later years, hinting at a potential acceleration in the rate of attrition increase. Analyzing the specific rates for each year would confirm this observation.



Rate behavior over time indicates a concerning trend of increasing employee turnover

Suggests a growing challenge in retaining talent within the organization

ANALYSIS

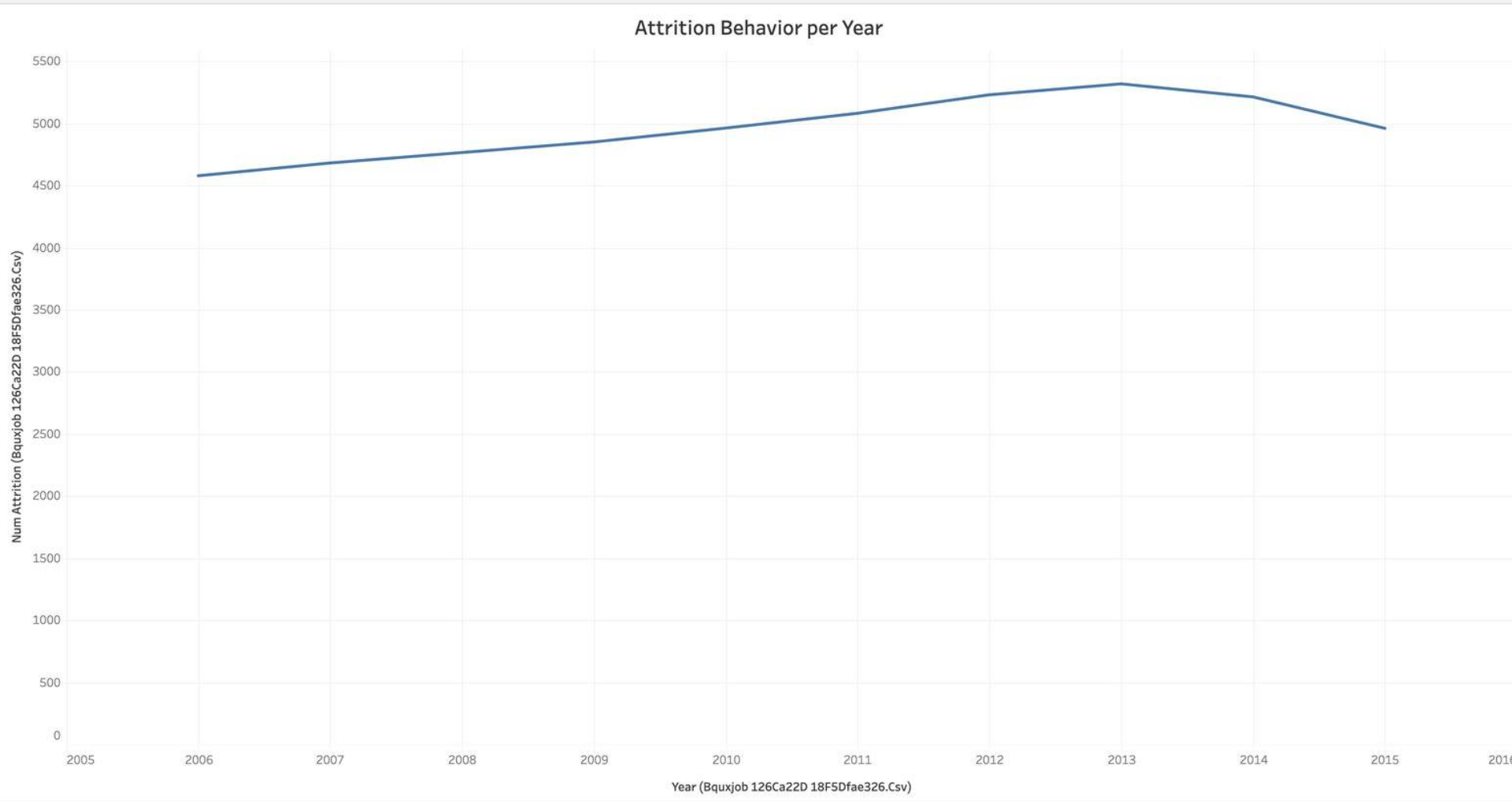
Rate Behavior

Overall upward trend in attrition

The line graph clearly demonstrates an overall increasing trend in the number of employee attritions from 2005 to 2013, indicating a growing challenge in retaining employees within the organization during this period.

Potential plateauing or slight decrease after 2013

Following the peak around 2013, the attrition numbers seem to plateau or even slightly decrease. This could suggest the possible effectiveness of implemented retention strategies or a change in external factors influencing attrition rates.





From insights to action.

Addressing Attrition

Attrition behavior over time reveals a complex picture with a clear upward trend from 2005 to 2013, followed by a potential plateau or slight decrease in recent years

- Towards a More Stable Workforce: Insights and Recommendations

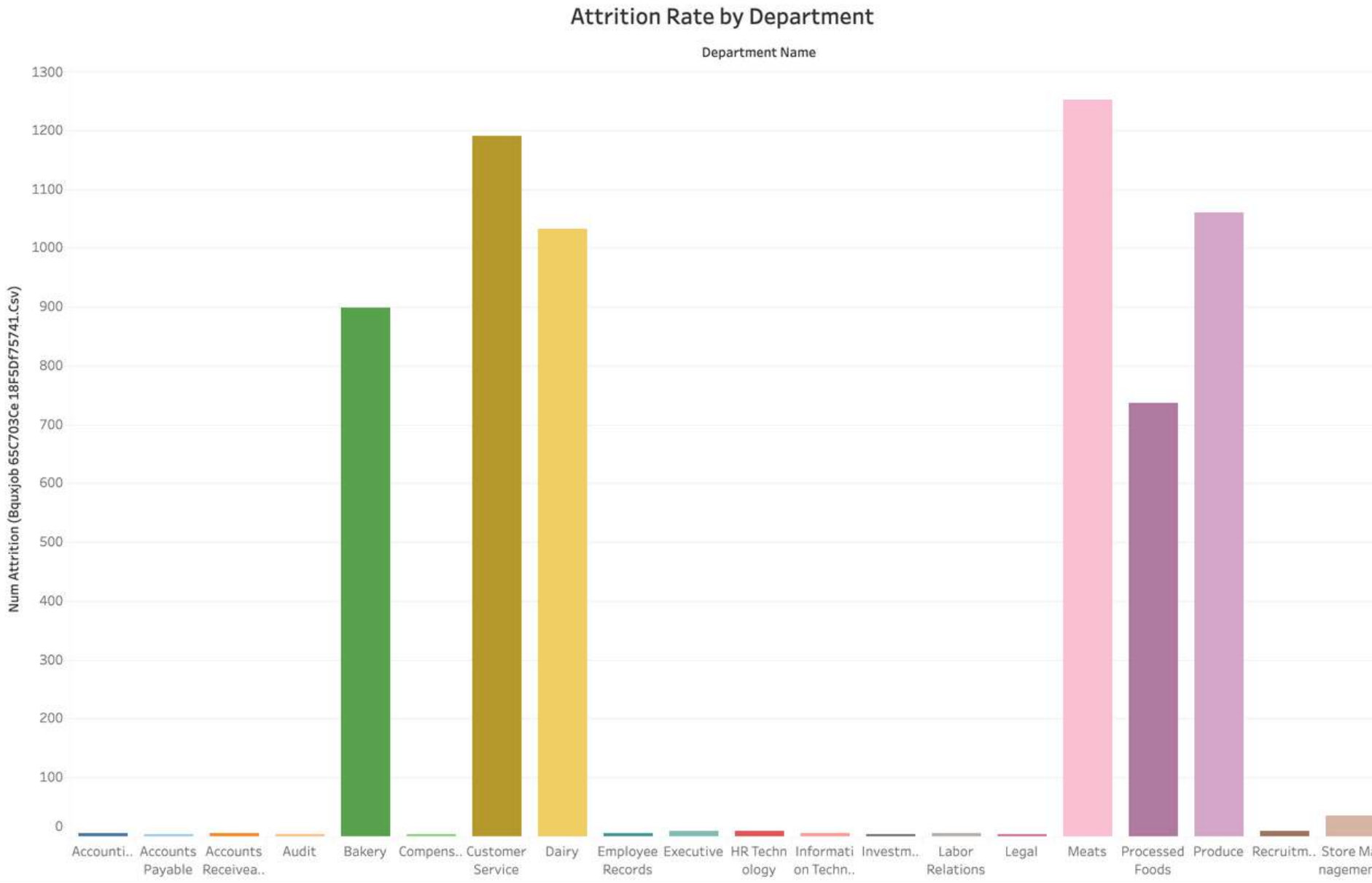
Rate Behavior

Significant variation in attrition rates across departments

The bar chart highlights a substantial difference in attrition rates among various departments within the organization. This suggests that department-specific factors play a crucial role in employee turnover.

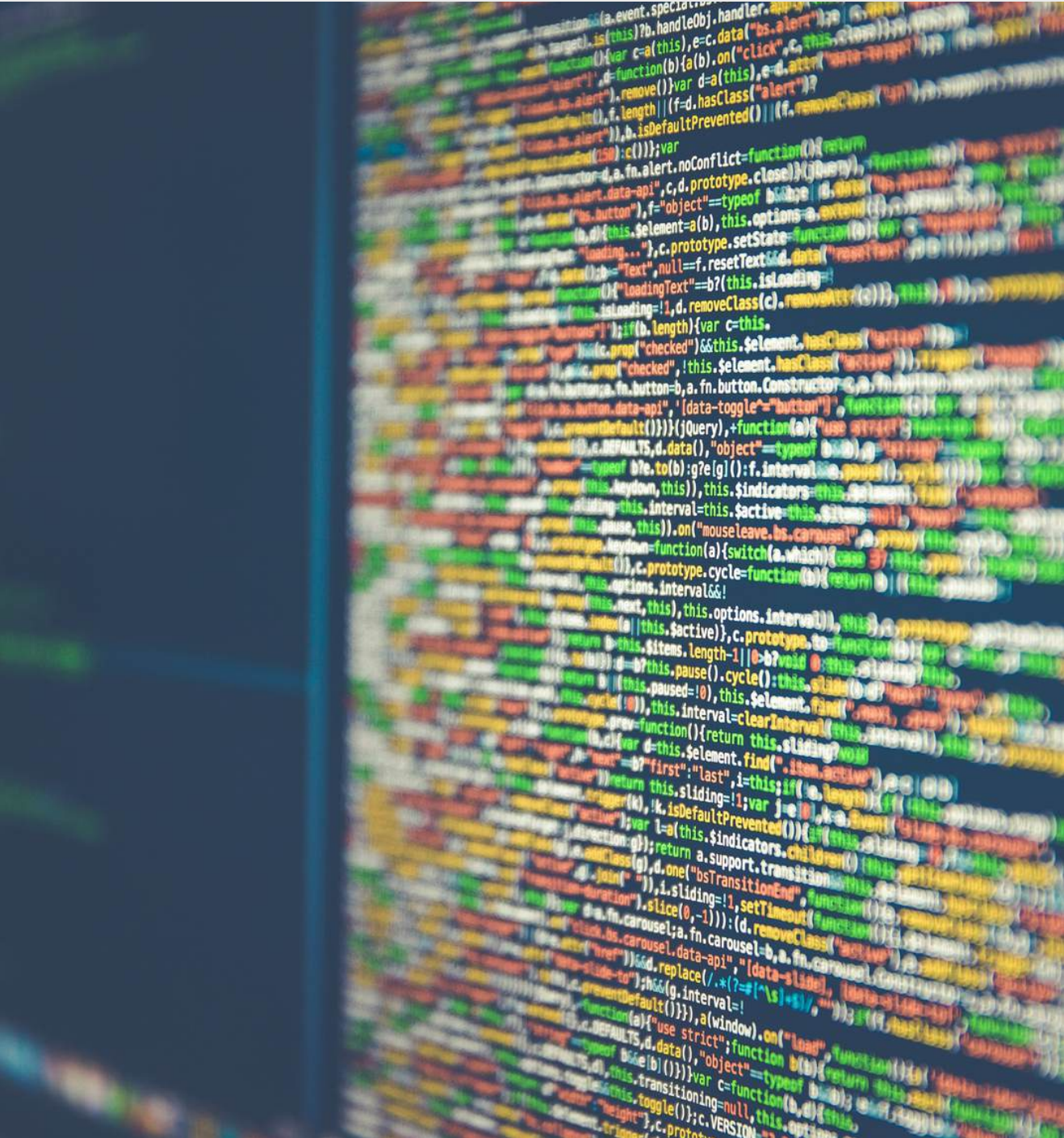
Lower attrition rates observed in departments like Accounts Payable, Executive, and Legal

Departments with shorter bars, such as Accounts Payable, Executive, and Legal, suggest better employee retention. Analyzing the characteristics and practices of these departments could provide valuable insights into successful retention strategies.



Understanding Department-Specific Drivers of Attrition

Attrition rates by department reveals significant variations across different areas of the organization, highlighting the importance of understanding and addressing department-specific factors influencing employee turnover



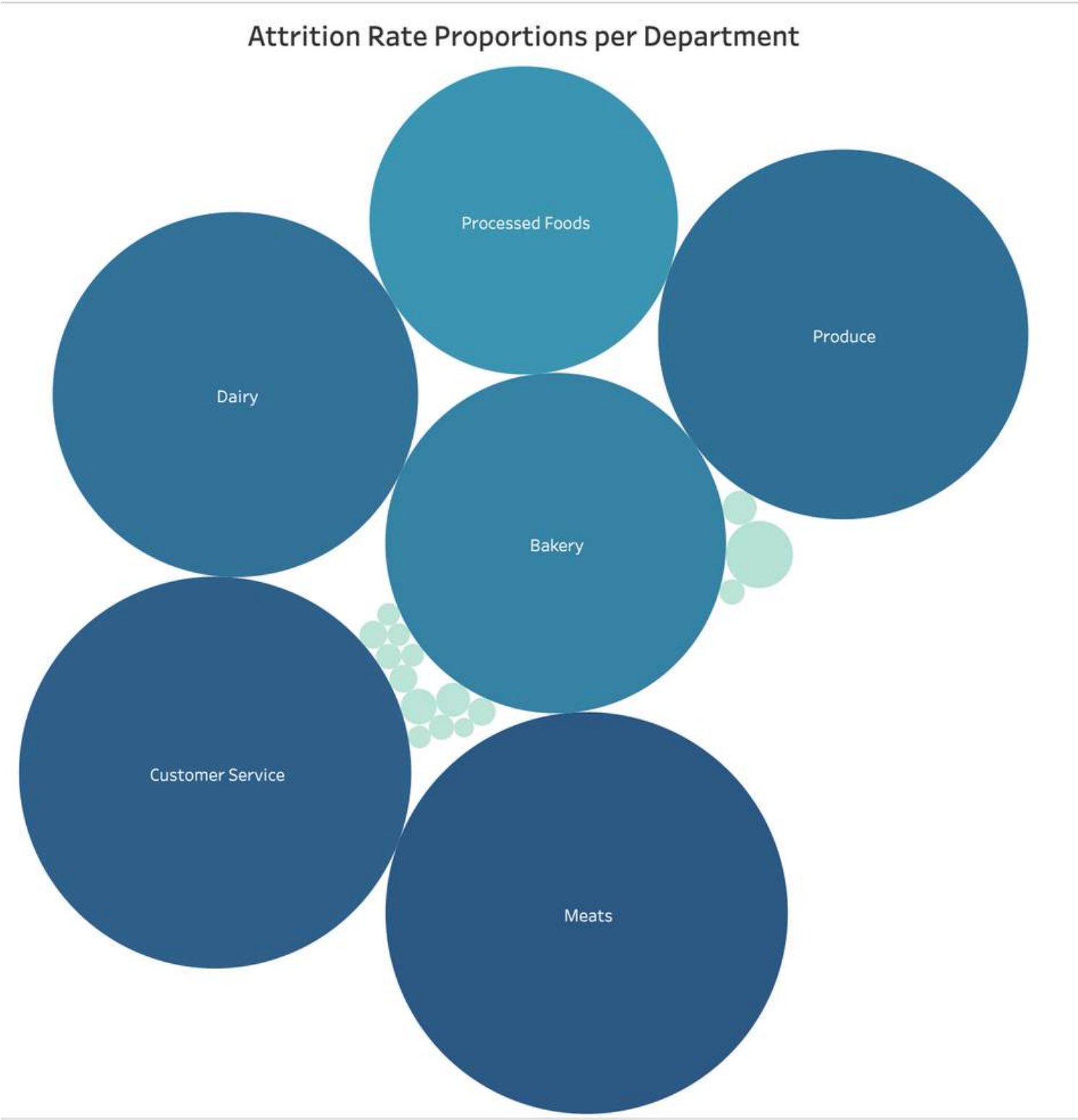
Proportions per Department

Customer Service, Meats, and Processed Foods contribute significantly to overall attrition

The larger size of the bubbles for these departments suggests they account for a greater proportion of total attrition within the organization. This highlights the need for focused attention and targeted interventions in these areas to address the underlying causes of employee turnover.

Dairy, Produce, and Bakery show relatively lower attrition proportions

The smaller bubbles indicate that these departments contribute less to the overall attrition rate compared to the others. Analyzing the practices and characteristics of these departments might reveal valuable insights into factors that promote employee retention.



Beyond the Bubbles: A Deeper Dive into Department-Level

Certain departments like Customer Service, Meats, and Processed Foods contributing disproportionately to overall attrition. This emphasizes the need for a targeted approach to employee retention

ANALYSIS

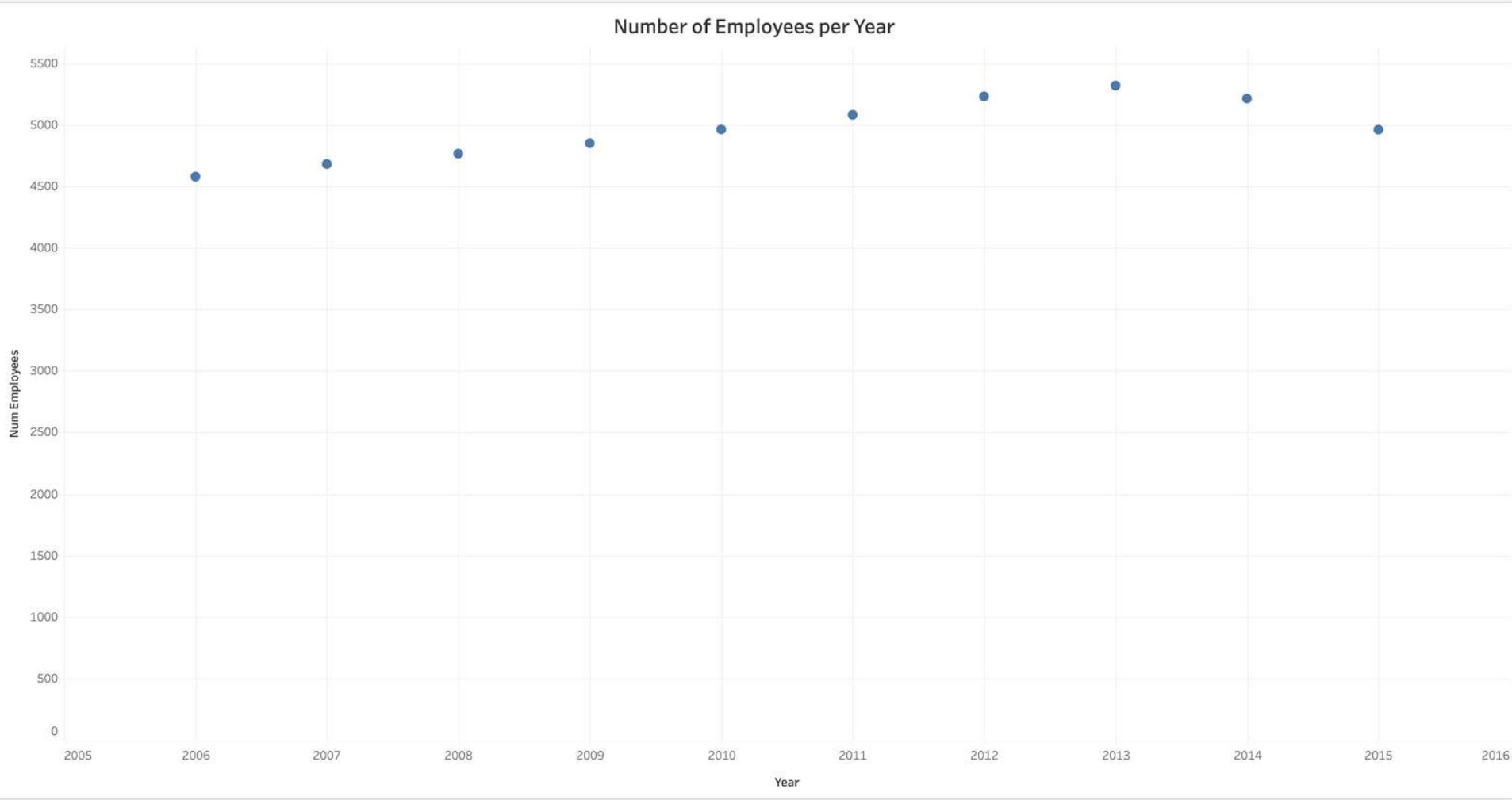
Yearly Employees

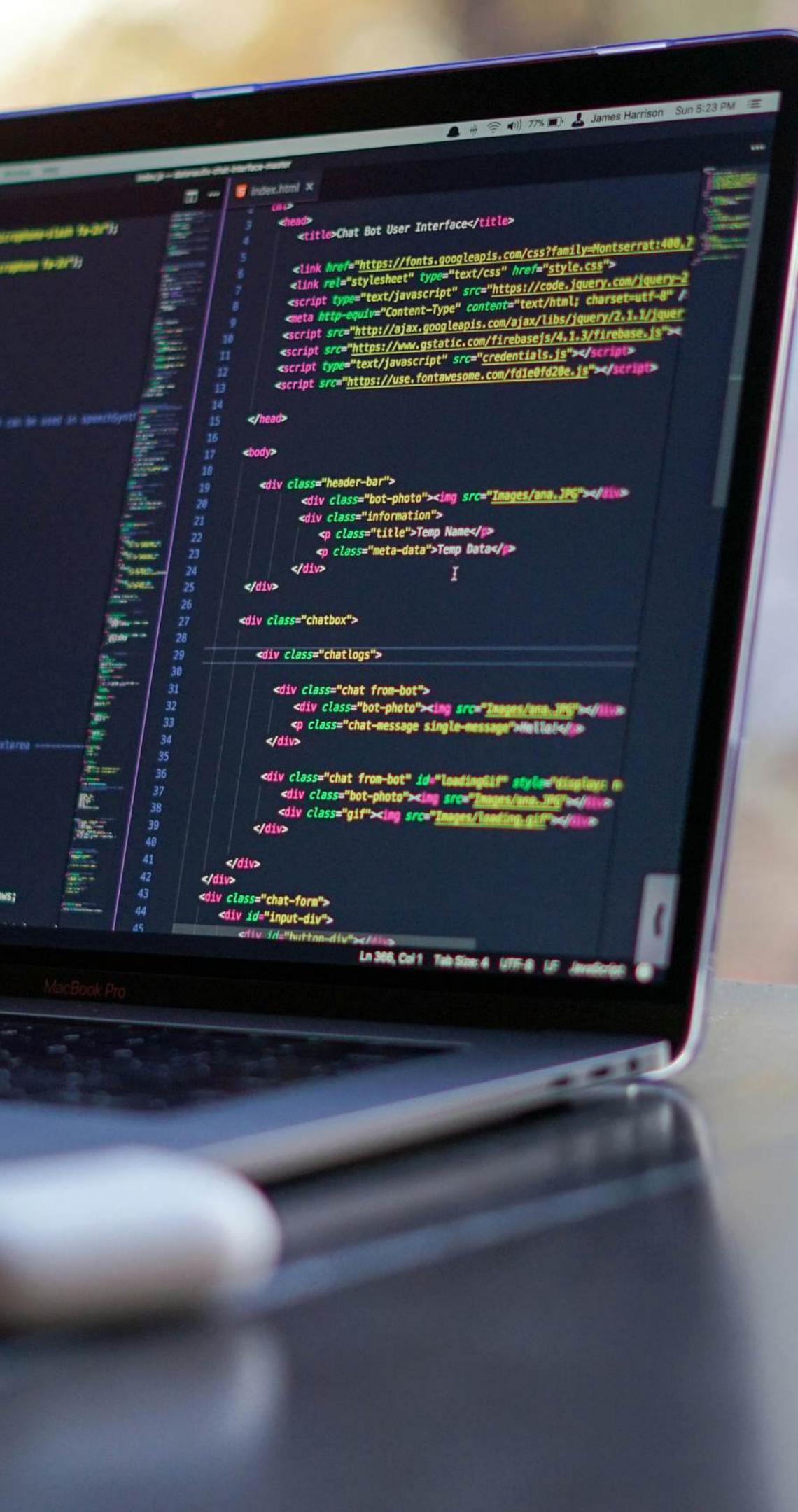
Overall growth in workforce size:

The larger size of the bubbles for these departments suggests they account for a greater proportion of total attrition within the organization. This highlights the need for focused attention and targeted interventions in these areas to address the underlying causes of employee turnover.

Relatively steady growth rate:

The points on the plot seem to be relatively evenly spaced, suggesting a fairly steady and consistent growth rate in the number of employees over the years, without significant fluctuations or sudden spikes.





Dynamics of Workforce Growth

Scaling for Success

Employee headcount over time demonstrates a consistent trend of workforce expansion, indicating the organization's growth and increasing demand for talent

- Steady Growth, Strategic Management: Navigating Workforce Expansion

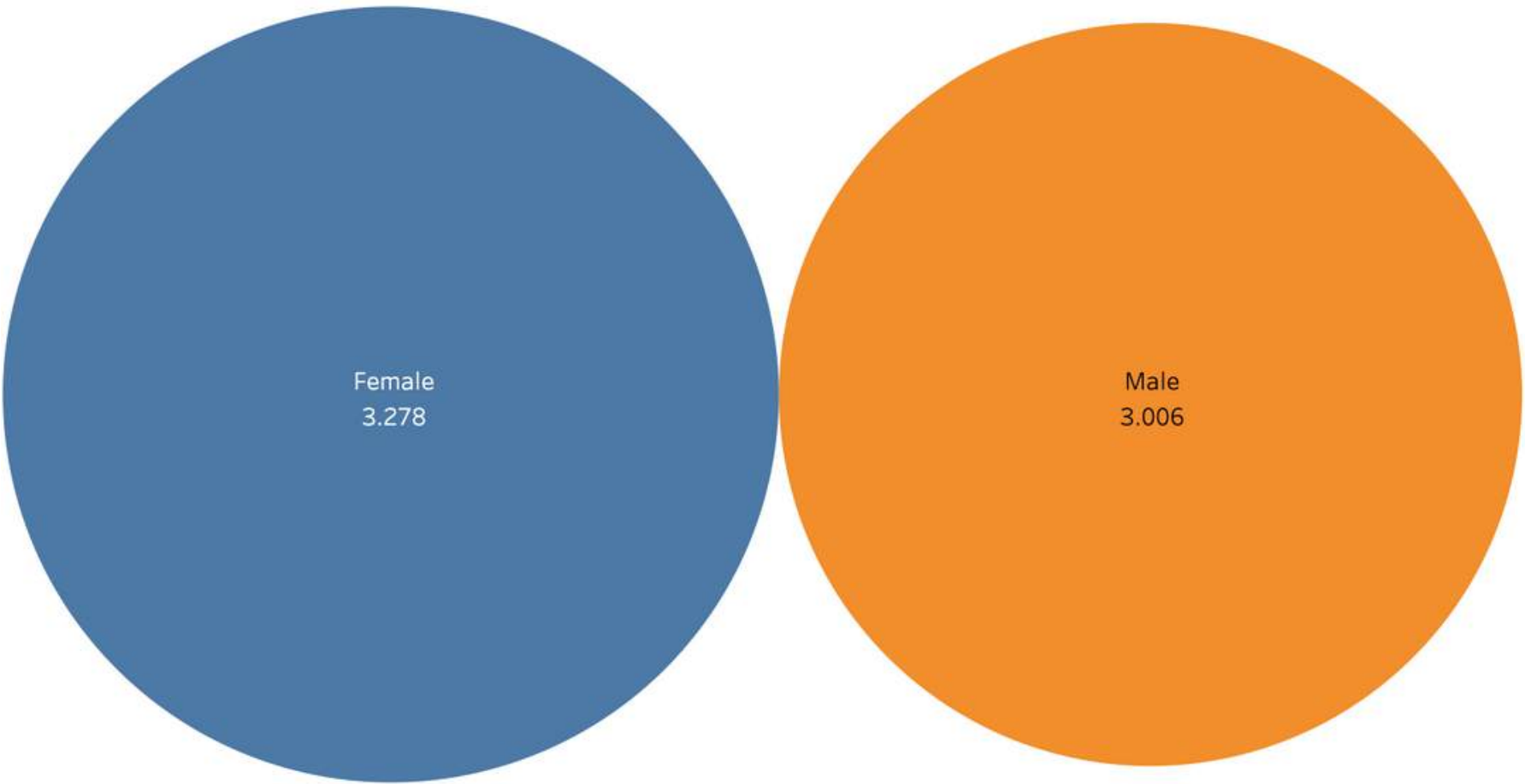
Gender Distribution

Relatively balanced gender distribution:

The bubble chart suggests a relatively balanced distribution between male and female employees within the organization. This indicates a positive sign in terms of gender diversity and representation within the workforce.

Slight majority of female employees

The slightly larger size of the bubble for female employees implies a small majority compared to male employees. However, the difference appears to be minimal, suggesting a near-equal representation of both genders.

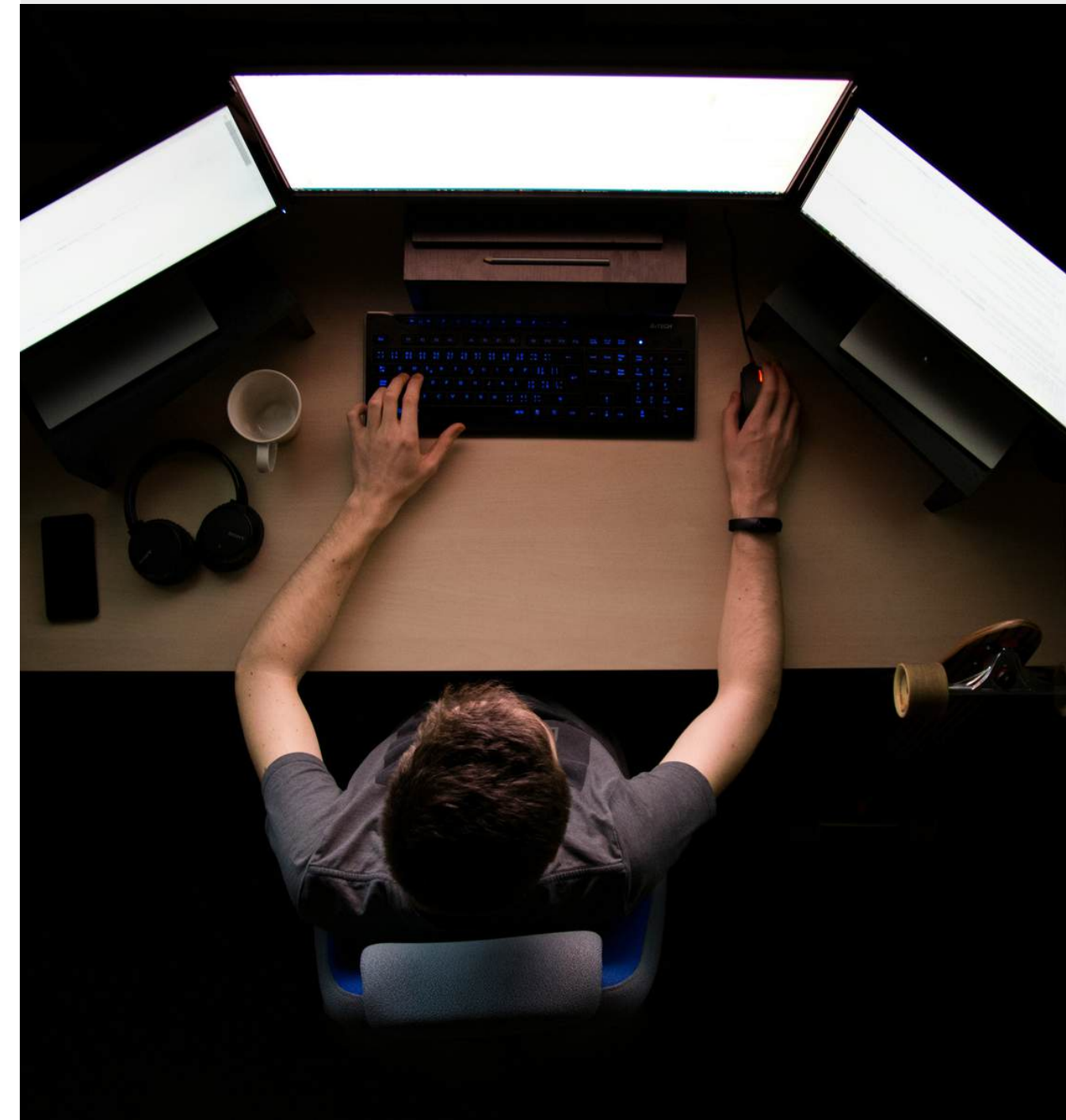


Towards a More Inclusive Workforce

The visualization of gender distribution within the organization presents a positive picture of relative balance and near-equal representation of both male and female employees

Gender Diversity

Fostering Equity and Inclusion for All



Part 1: Understanding our Workforce

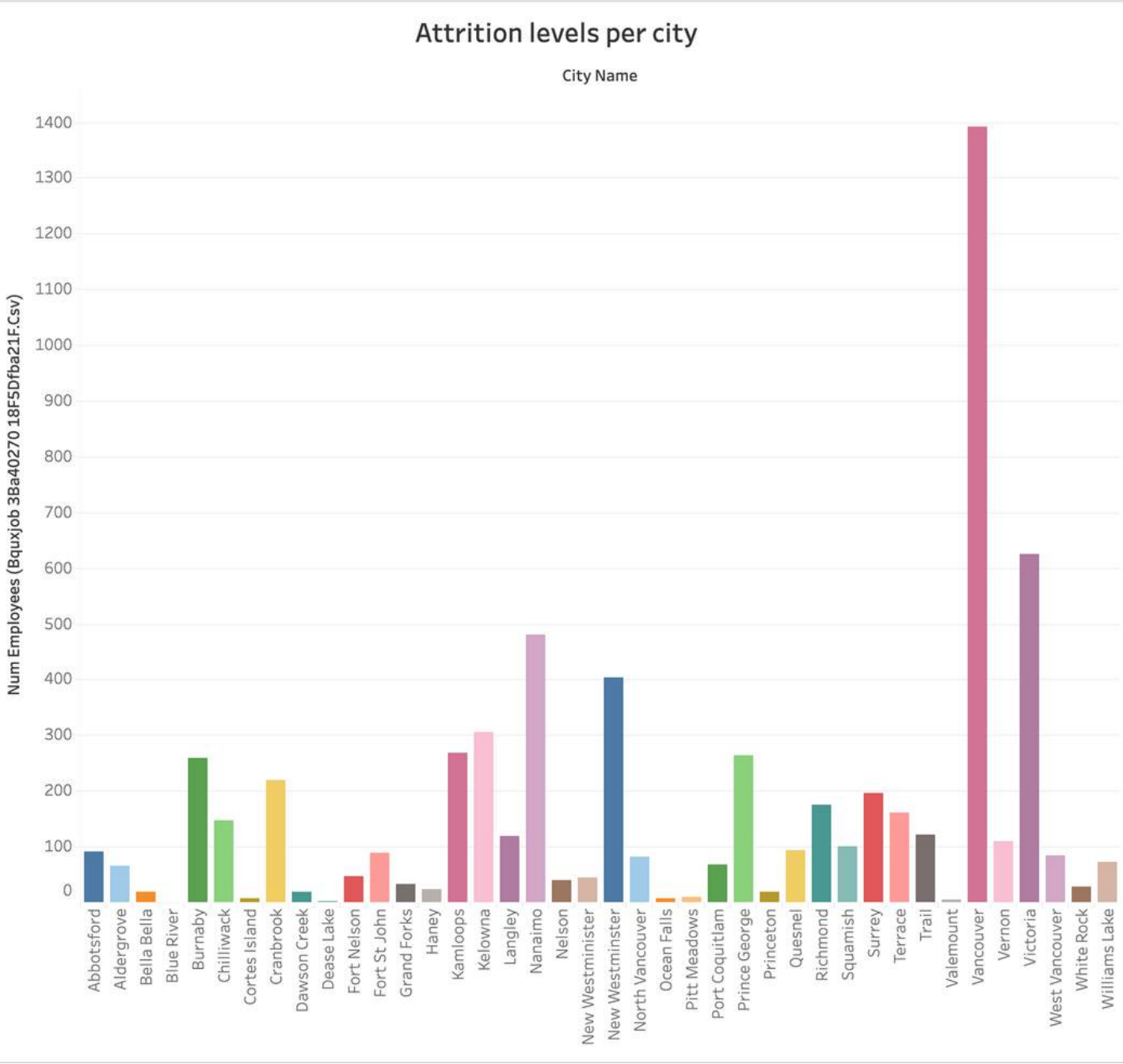
City Attrition

Vancouver exhibits exceptionally high attrition levels

The bar chart clearly shows Vancouver as a significant outlier with a substantially higher number of attritions compared to all other cities. T

Significant variation in attrition across other cities

While Vancouver stands out, the chart also reveals considerable variation in attrition levels among the remaining cities. This suggests that location-specific factors play a role in employee retention, and a tailored approach is necessary when addressing attrition concerns.



- # Location Matters: Addressing Attrition Disparities Across Cities

While Vancouver stands out as a major outlier with exceptionally high attrition, other cities exhibit a range of attrition rates, highlighting the importance of considering location-specific factors when addressing employee retention.

DRIVING INSIGHTS

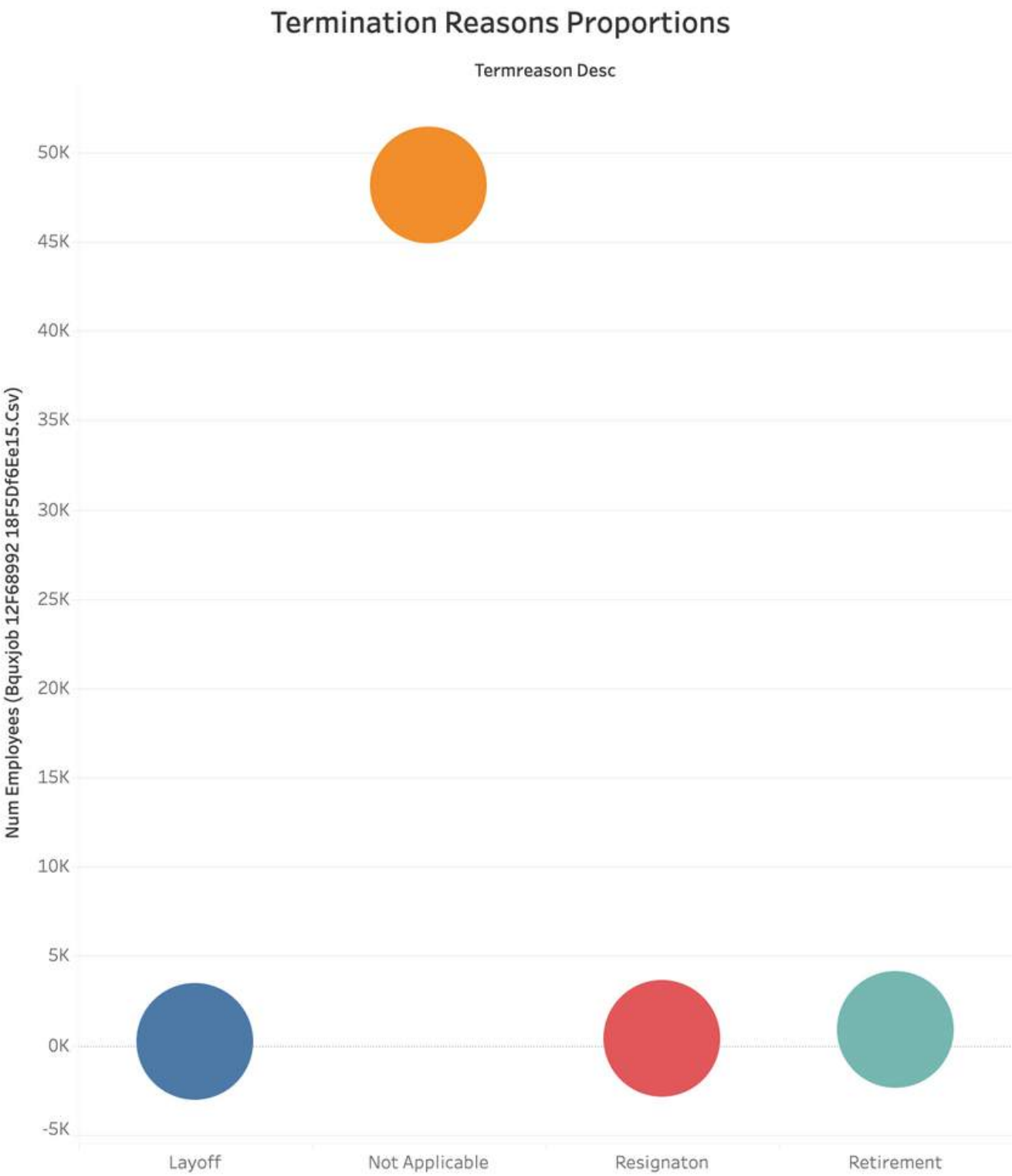
Termination Reasons

Dominance of 'Not Applicable'

The category labeled 'Not Applicable' stands out significantly with the highest count, suggesting that it represents a large portion of the termination data. This might indicate situations where the reason for termination does not fit the usual categories or perhaps errors in data categorization or entry.

Implications for HR Strategy:

- The large volume of 'Not Applicable' terminations needs further investigation to ensure data integrity and usefulness.
- The organization might benefit from developing strategies to reduce layoffs by enhancing job security and revising any policies that might lead to higher involuntary terminations.
- Understanding the reasons behind resignations could help in improving employee retention strategies.

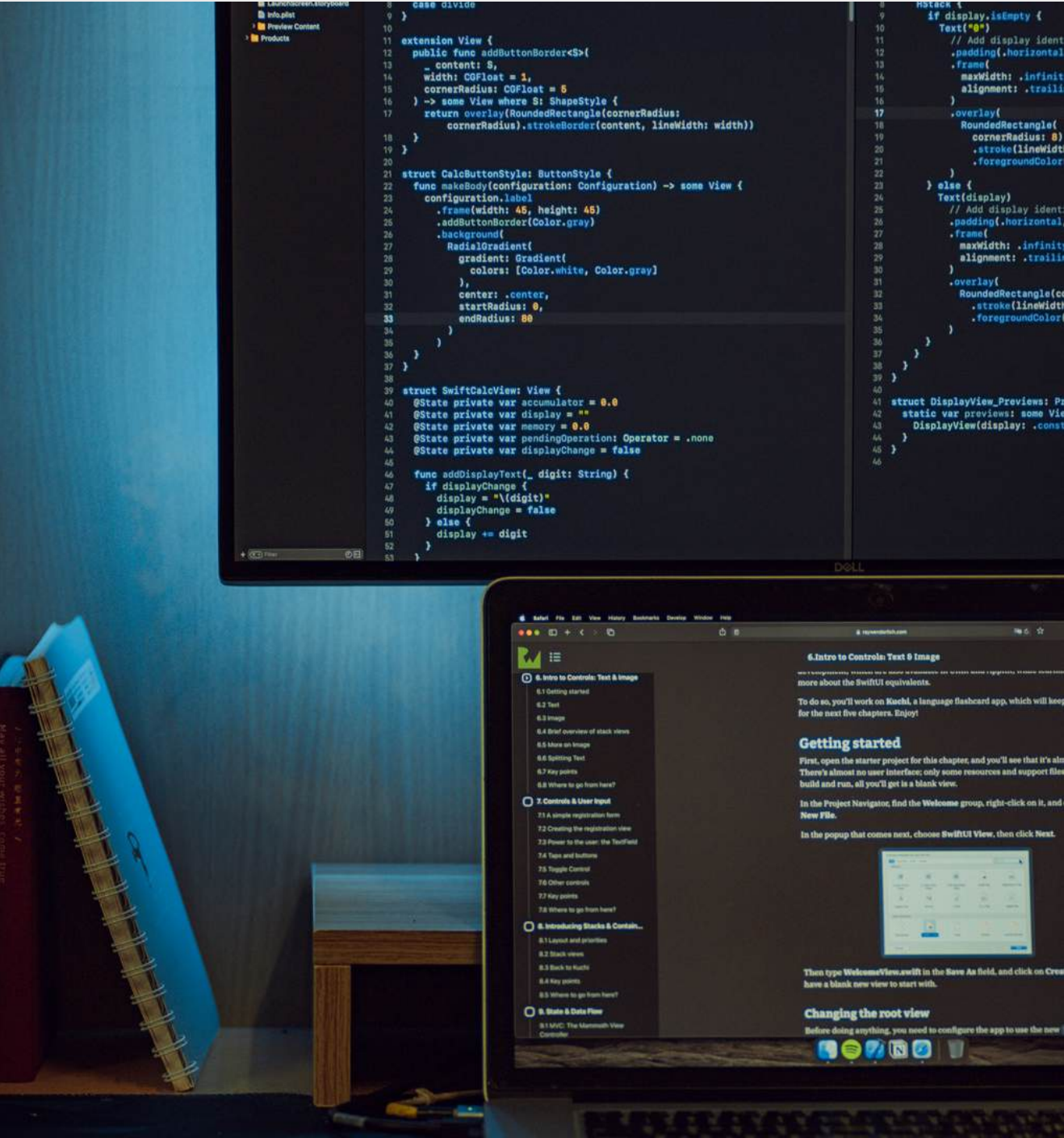


Organization Stability

General conclusions

Strategic Insights for
Enhanced Employee
Retention

The analysis of termination reasons within the organization highlights crucial insights into workforce dynamics, primarily dominated by an unusually high occurrence of 'Not Applicable' terminations, alongside notable instances of layoffs, resignations, and retirements.



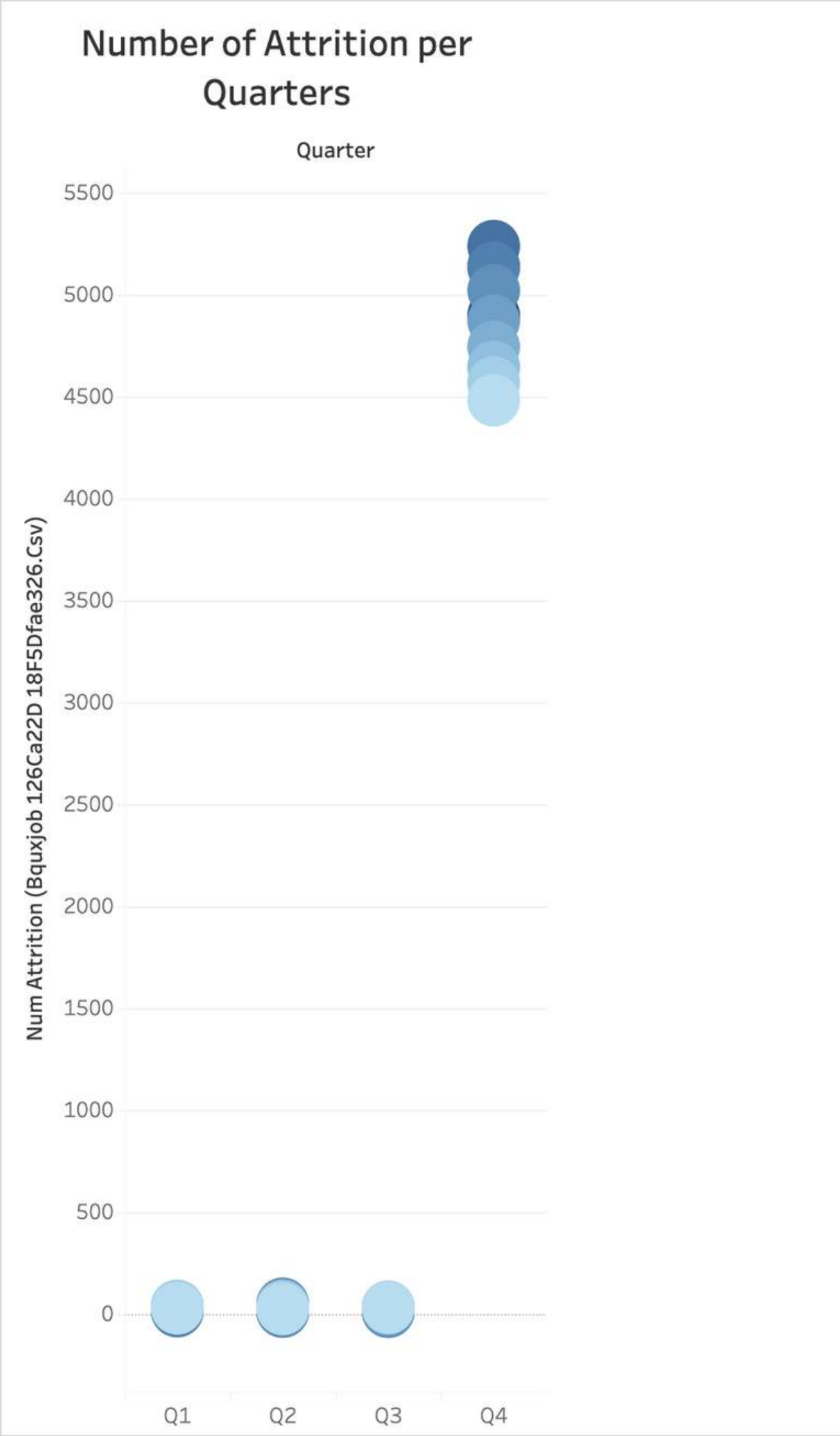
Attrition Quarters

Significant Increase in Q4

There is a dramatic increase in attrition in the fourth quarter, where the number of attritions appears to exceed 5000, compared to nearly zero in the first three quarters.

Stability in the First Three Quarters:

- **Q1, Q2, Q3:** These quarters show remarkably low attrition, almost negligible when compared to Q4. This stability might indicate effective employee engagement and retention strategies in place during most of the year or could reflect a lack of significant organizational changes during these periods.

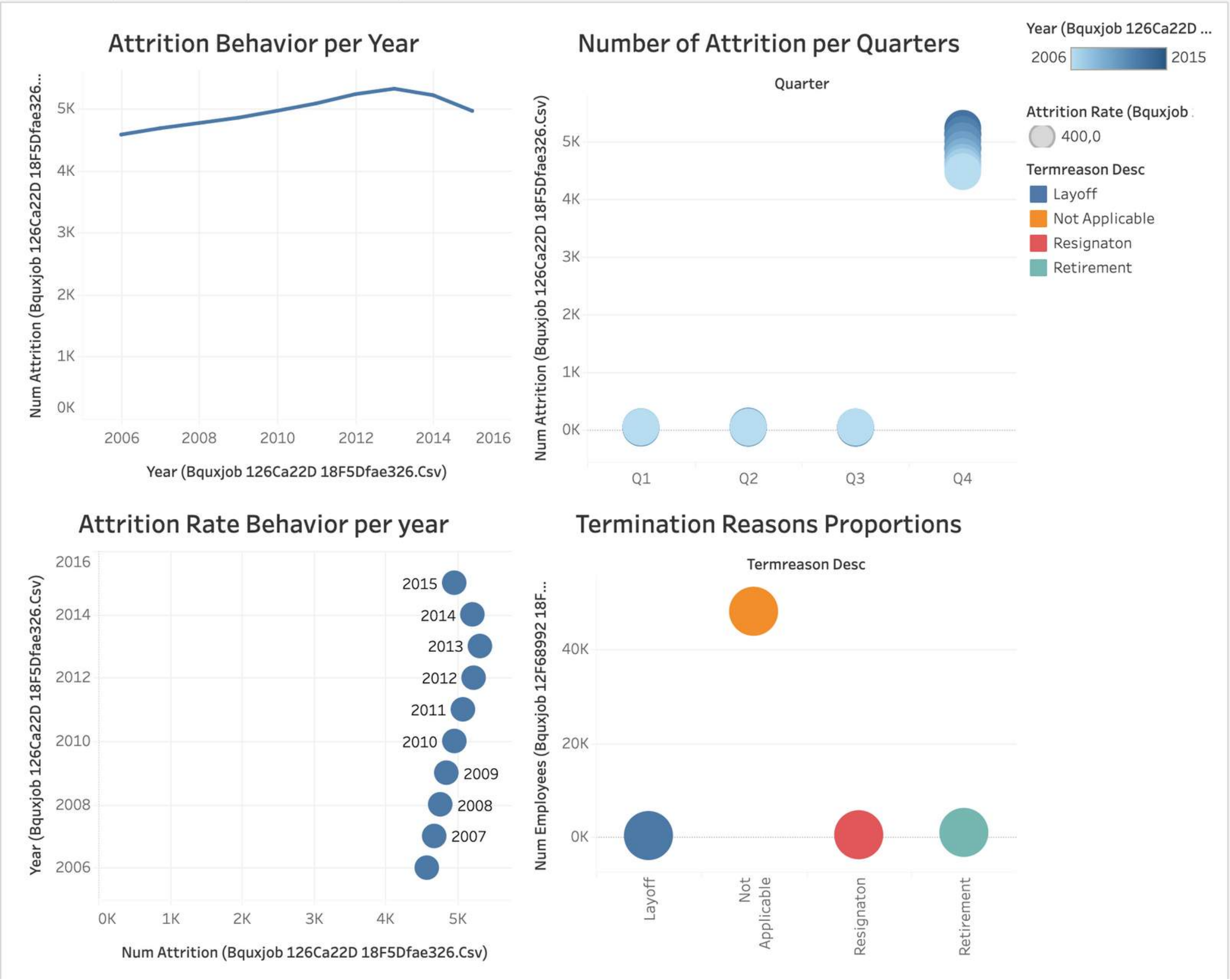


Understanding Factors Leading High Attrition

The extreme variance between the quarters suggests the need for a detailed analysis of organizational activities, especially in Q4. Understanding the factors leading to such high attrition during this period could help in strategizing better retention plans.

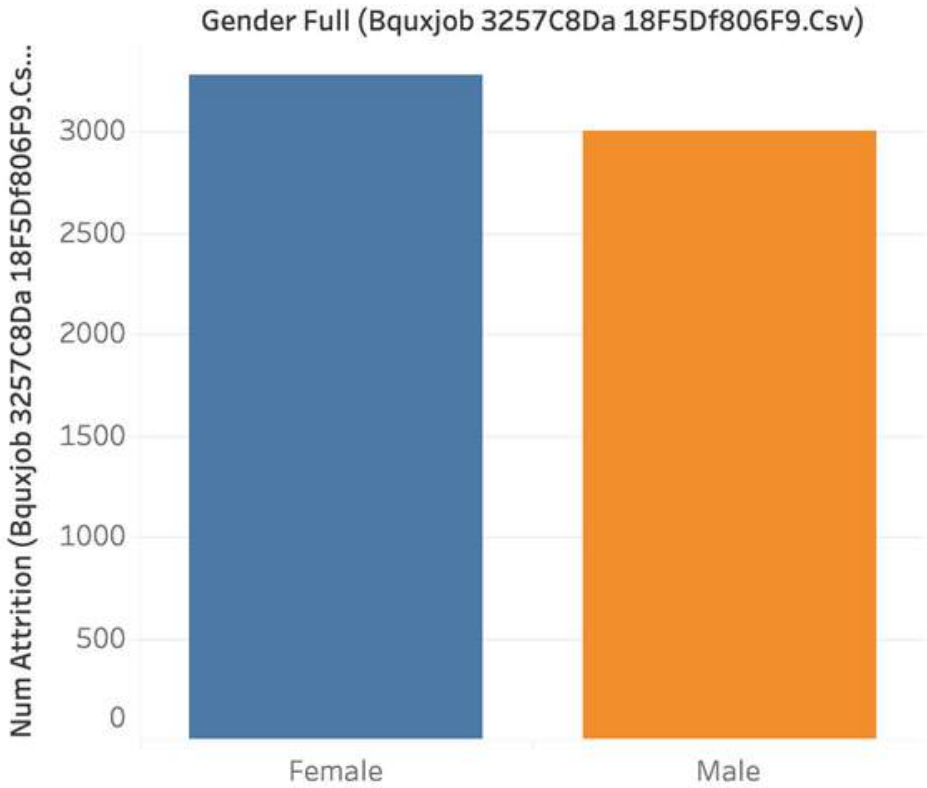
IN DEPTH ANALYSIS

Part 1: Understanding our Workforce

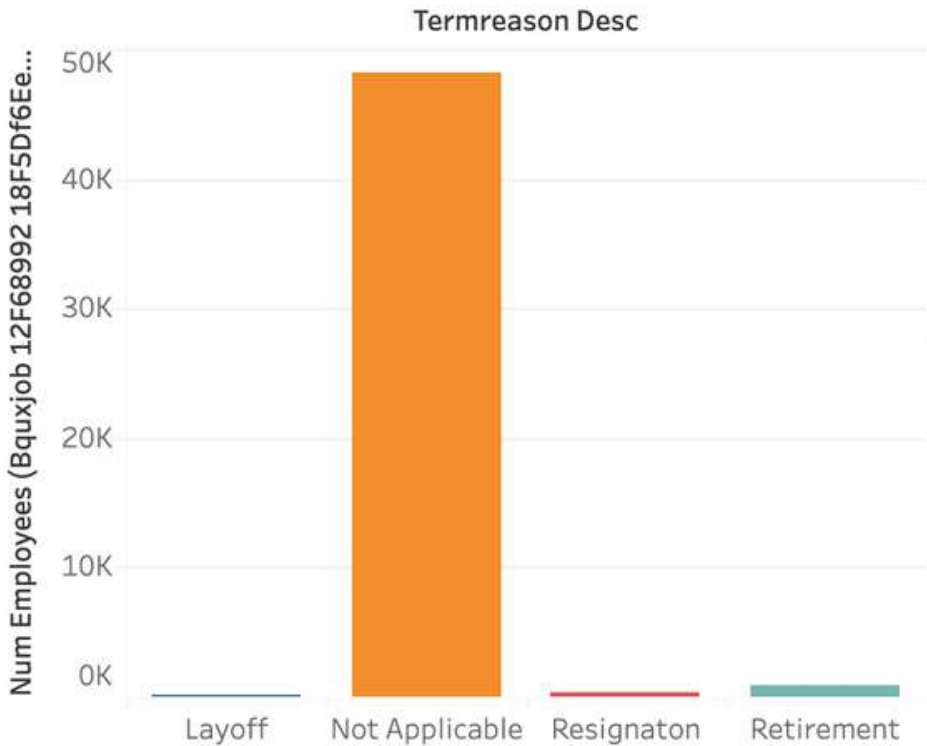


Part 1: Understanding our Workforce

Gender and number of attrition levels



Termination Reasons Proportions



Termreason Desc

- Layoff
- Not Applicable
- Resignaton
- Retirement

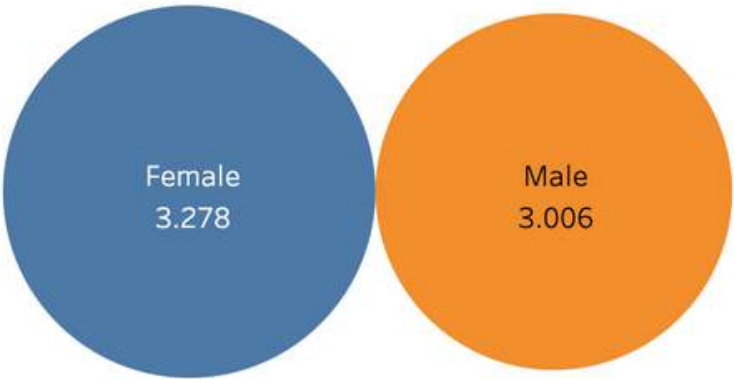
Gender Full (Bquxjob 3257C8Da 18F5Df806F9.Csv)

- Female
- Male

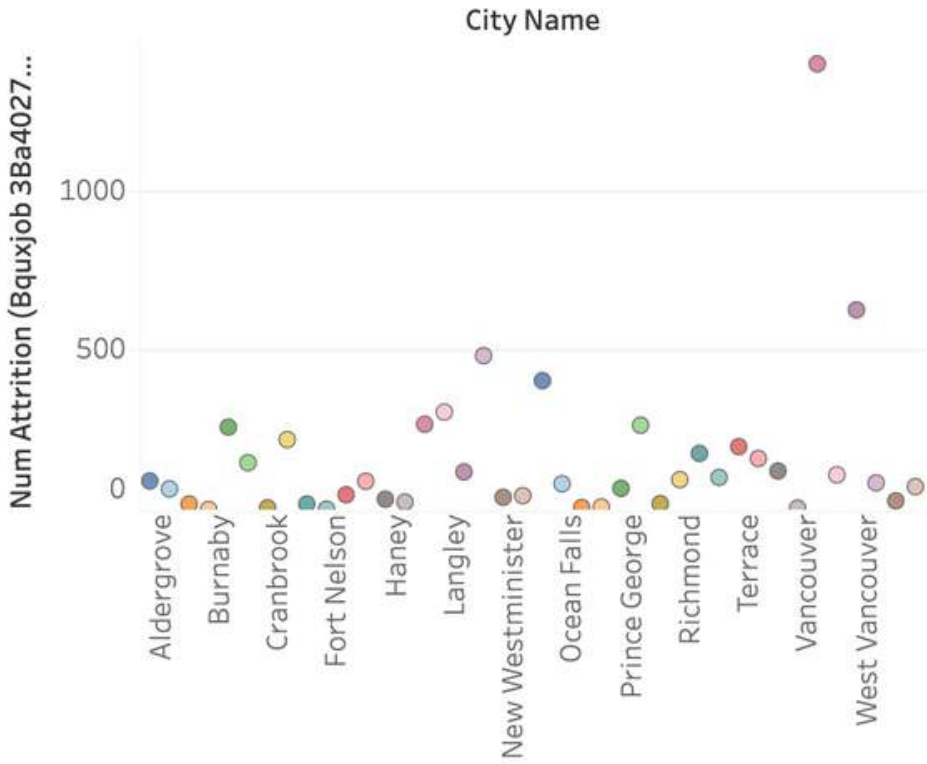
City Name

- Abbotsford
- Aldergrove
- Bella Bella
- Blue River
- Burnaby
- Chilliwack
- Cortes Island
- Cranbrook
- Dawson Creek
- Dease Lake
- Fort Nelson
- Fort St John
- Grand Forks
- Haney
- Kamloops
- Kelowna
- Langley
- Nanaimo
- Nelson
- New Westminister
- New Westminister
- North Vancouver
- Ocean Falls
- Pitt Meadows
- Port Coquitlam
- Prince George
- Princeton
- Quesnel

Gender and Number of Attritions Proportions



Attrition Levels per City



Performance and Development

A person is sitting at a desk, writing in a spiral-bound notebook with a black pen. Their left hand is resting on the notebook. To the left of the notebook is a silver laptop with a black keyboard. The background is a dark, textured surface, possibly a desk or wall. The overall lighting is dim, creating a focused and professional atmosphere.

PERFORMANCE VALUE

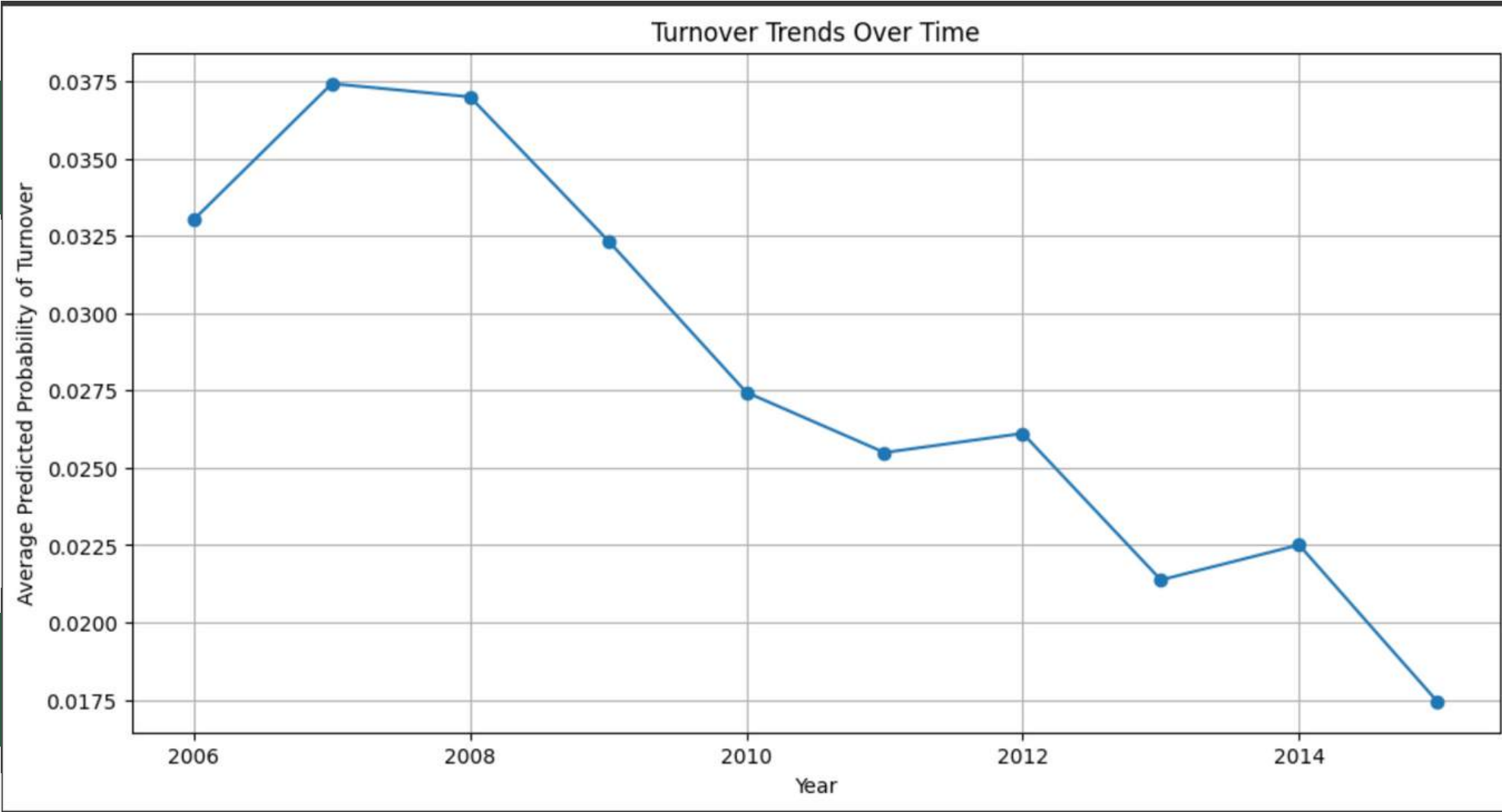
Turnover Predictions

Overall Decline in Turnover Probability

The trend in turnover probability shows a general decline from 2006 through 2014, with an initial peak around 2006. This decline suggests improvements in organizational conditions or external economic factors that might have influenced employees' decisions to stay with the company.

Stabilization and Slight Increase Toward 2014

From 2010 to 2012, the turnover probability stabilizes at a lower level, followed by a slight increase in 2014. This could suggest a recovery phase where employees felt more confident in the job market, potentially leading to increased turnover as they pursued better opportunities elsewhere.



From insights to action.

Addressing fluctutations

These fluctuations highlight the importance of understanding broader economic trends and their impact on employee retention.

. By aligning retention strategies with economic cycles, the businesss can better anticipate changes in employee behavior

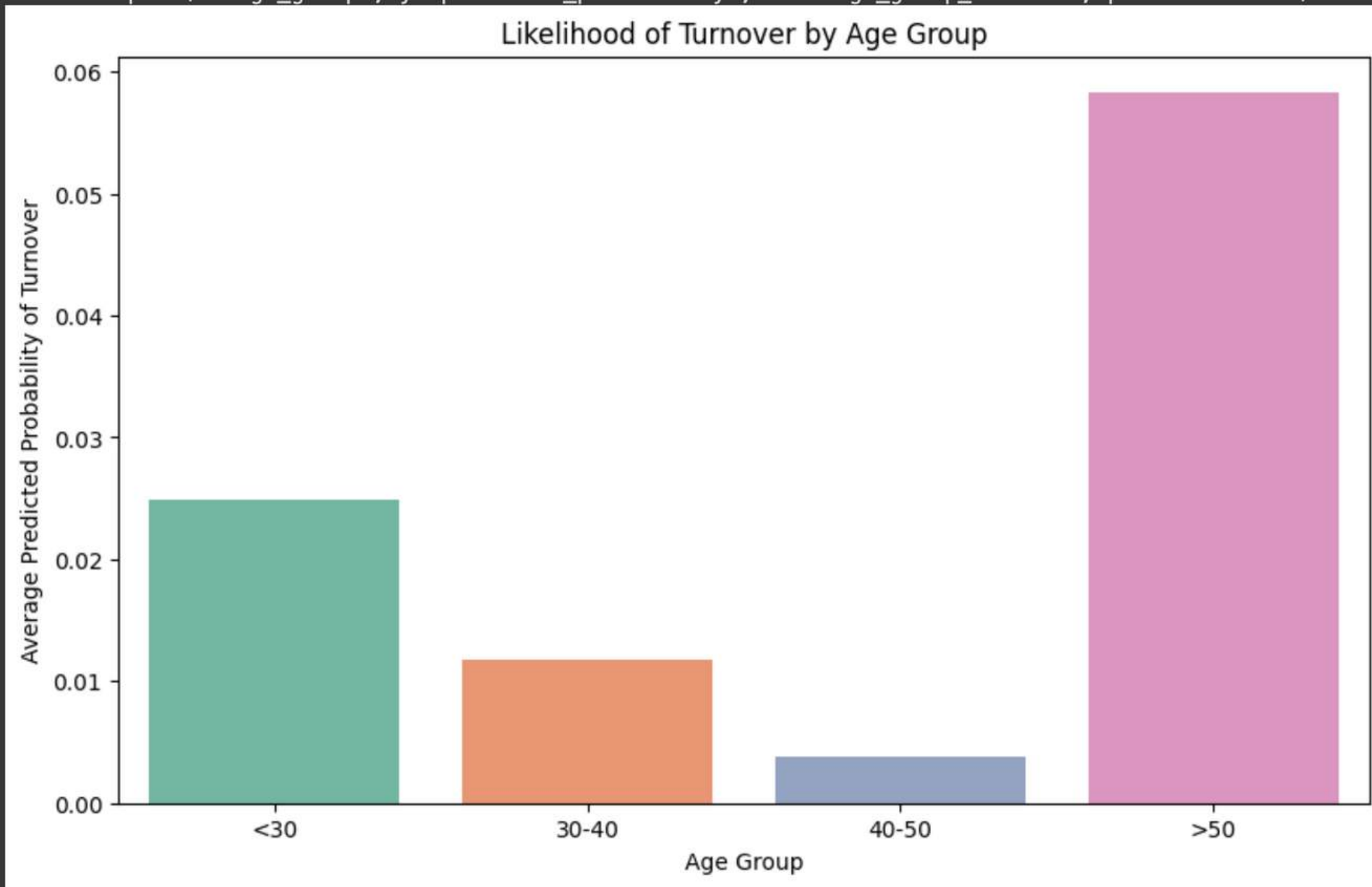
Likelihood of turnover

Higher Turnover Among the Youngest and Oldest Age Groups:

- The under 30 age group shows a relatively higher likelihood of turnover compared to the middle age groups (30-40 and 40-50), suggesting that younger employees might be exploring different career opportunities or lack engagement with the company.

Stability Among Middle-Aged Employees:

- The age groups 30-40 and 40-50 show significantly lower probabilities of turnover. This indicates a period of career stability where employees are likely more settled in their roles, possibly due to higher responsibilities like management positions or family stability.



Age-Specific Turnover Trends

The youngest (<30) and oldest (>50) age groups demonstrate higher turnover rates, suggesting a need for targeted interventions to address their distinct career and life stage needs

Strategic Interventions

Enhanced Employee Retention



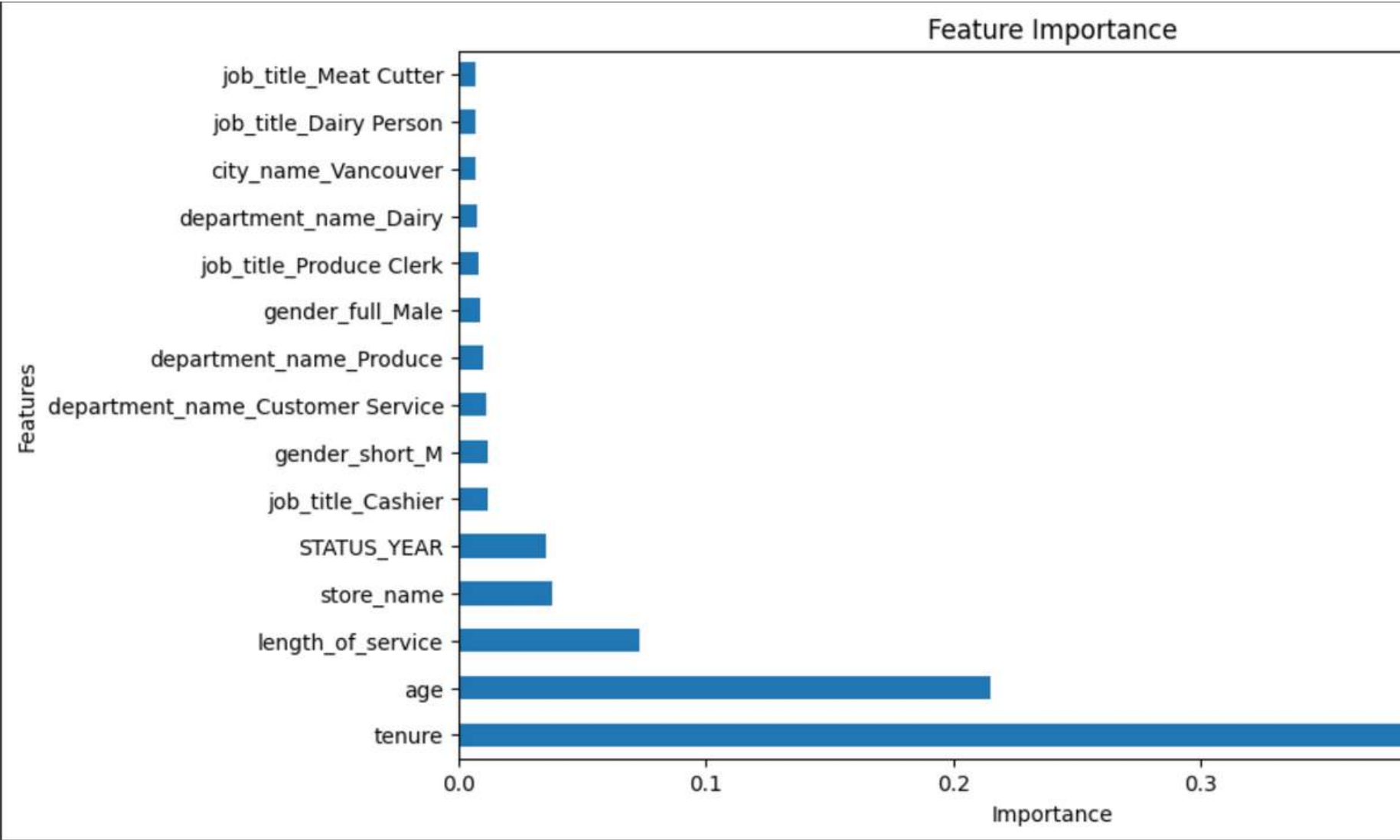
Feature Importance

Dominant Features into the Machine Learning Modelling

- **Tenure:** This feature has the highest importance, indicating that the length of time an employee has been with the company is a crucial factor in predicting turnover. Employees with either very short or very long tenures might be more likely to leave.
- **Age:** Age is also a significant predictor, suggesting that turnover intentions may vary significantly across different age groups.

Tailored HR Strategies:

The importance of job titles and department names suggests a need for tailored HR strategies that address the specific needs and challenges of different departments and job roles.



Understanding Factors Leading High Attrition

The extreme variance between the quarters suggests the need for a detailed analysis of organizational activities, especially in Q4. Understanding the factors leading to such high attrition during this period could help in strategizing better retention plans.

IN DEPTH ANALYSIS

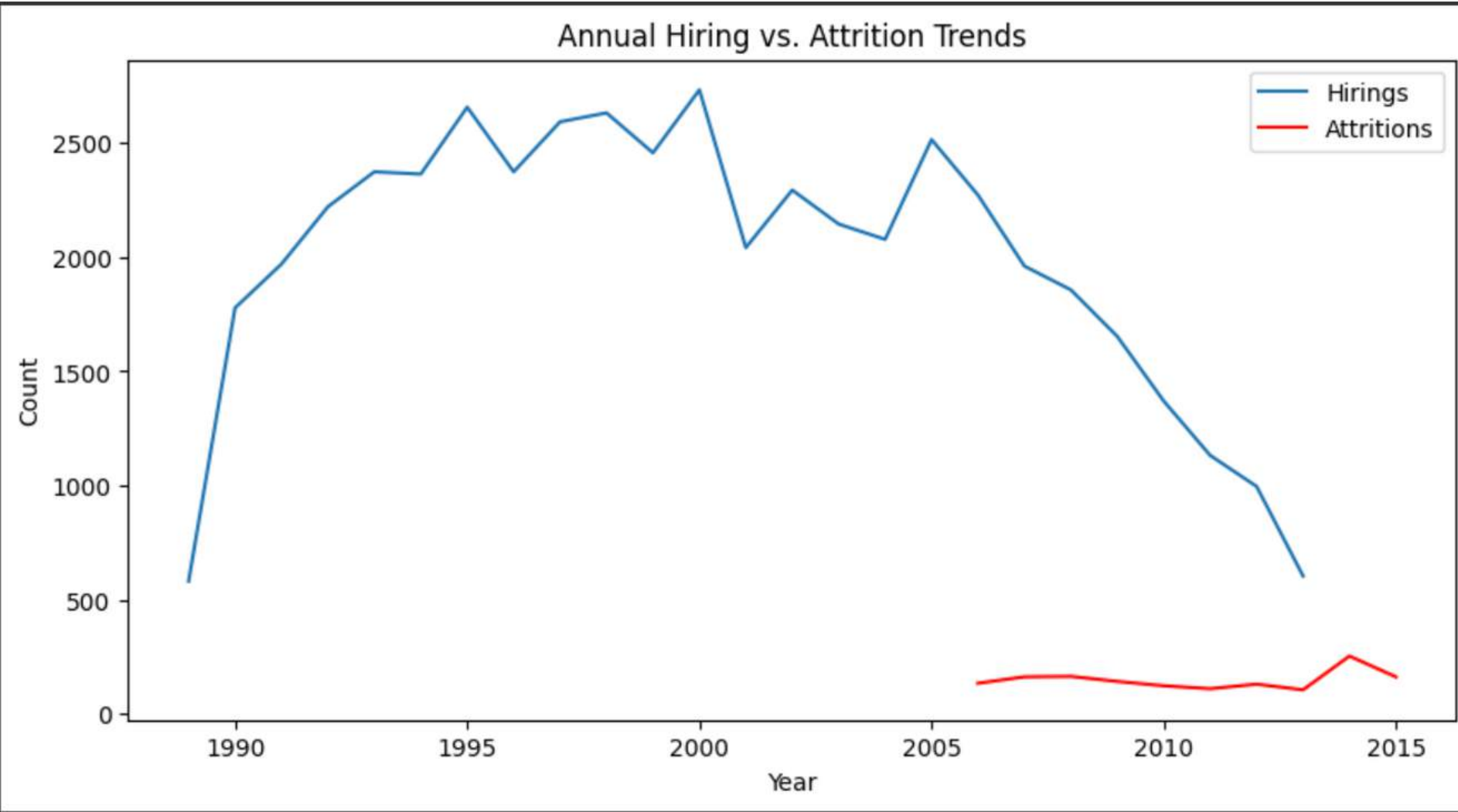
Attrition Trends

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Tailored HR Strategies:

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From insights to action.

Machine Learning Modelling

The model highlights tenure, age, and length of service as the most impactful predictors, suggesting that the duration of an employee's engagement with the company is a key determinant of their likelihood to stay or leave.

Insights from Feature Importance in Turnover Prediction

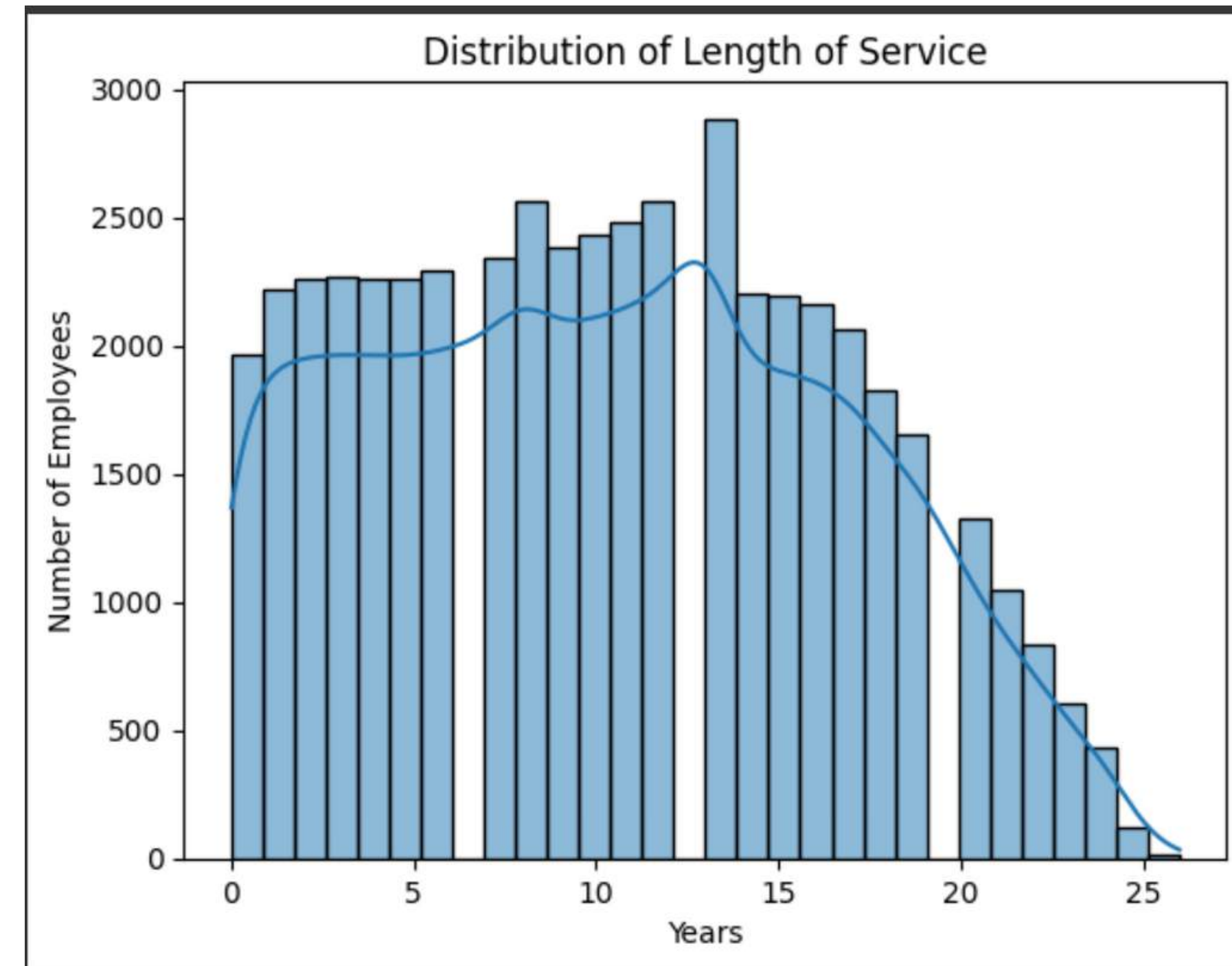
Distribution workforce

Peak in Early Tenure

- The distribution shows a high concentration of employees within the early tenure stages, specifically around 5 to 10 years. This peak suggests that a significant portion of the workforce has moderate experience within the company.

Decline with Increasing Tenure

- There is a gradual decline in the number of employees as tenure increases beyond 10 years. The steeper decline post-15 years indicates fewer employees reach or exceed this length of service, possibly due to retirements or career changes.



Workforce Tenure Analysis: Strategic Retention Across Career Stages

The analysis of the distribution of length of service among employees reveals key insights into the workforce's tenure dynamics. A notable peak in employee numbers around the 5 to 10-year mark indicates that the organization successfully retains staff through their early to mid-career phases.

Workforce Tenure Analysis

Analysis Factors



Employee Engagement and Experience

A person is sitting at a desk, writing in a spiral-bound notebook with a black pen. A silver laptop is open to the left of the notebook. The person is wearing a tan sweater. The background is a dark, moody image of a desk with a laptop and a notebook.

ENGAGEMENT VALUE

Feedback and Continuous Improvement

- Regularly collect and analyze employee feedback across different tenure lengths to continuously improve workplace practices, address concerns promptly, and adapt engagement strategies to changing employee expectations and industry standards.

ENGAGEMENT

Career Development Opportunities.

- Offer structured career development opportunities, including training and advancement paths, particularly targeting employees in the 5 to 10-year tenure bracket to maintain their engagement as they move towards mid-career stages.



Focus on

Structured Career Development

Recognition and Rewards

- Implement recognition programs that acknowledge employee milestones and contributions, especially for those with long tenures (15+ years), to enhance their job satisfaction and emotional connection to the company.



Implement

Recognition programs.

Tailored Onboarding Programs:

- Develop comprehensive onboarding programs that cater to the specific needs of new hires, aiming to boost early engagement and reduce turnover within the first 5 years of service.



Attrition and Retention Strategies

A person is sitting at a desk, writing in a spiral-bound notebook with a black pen. A silver laptop is open to the left of the notebook. The person is wearing a tan sweater. The background is a dark, textured surface. The text 'Attrition and Retention Strategies' is overlaid in white at the top left.

ENGAGEMENT VALUE

Early Tenure Intervention

- Implement robust support systems for new hires including mentorship programs and regular check-ins to ensure smooth integration into the company culture and reduce early attrition.

Mid-Career Enrichment Programs:

- Design targeted career development programs and skills enhancement workshops for employees in the 5-15 year tenure range to keep their skills relevant and engagement high.

Long-Term Loyalty Incentives:

- Offer long-term incentives such as increased retirement benefits, stock options, or loyalty bonuses to retain employees who have served for 15 years or more.

Flexible Retirement Planning:

- Provide flexible retirement plans and phased retirement options that allow older employees to gradually reduce their working hours while mentoring younger staff.

Customized Benefits Packages:

- Tailor benefits packages based on employee demographics (age, tenure, job role) to meet their specific needs and lifestyle, enhancing overall job satisfaction and retention.

Performance and Feedback Alignment:

- Regularly review and align performance management systems to ensure they are fair and reflective of individual contributions, fostering a culture of recognition and transparency.

Juan Jose Pardo
Senior Data Analyst
juanjosepardoroman123@gmail.com

Linkedin: <https://www.linkedin.com/in/juan-pardo-a51bb522b/>