O-Zone Telecom

Facilitating An African Expansion by Analyzing Factors Affecting Employee Turnover

Global Expansion & Market Leadership

B2B focus
Serves companies & administrations.

Financial strength
€950M revenue (2022).

Global presence
Operates in Europe & Asia servicing with 500+ clients & 10 000+ employees.

Industry leader
Among the top 3 telecom companies worldwide.

O-zone Telecom's Expansion Goal
Retain top talent for African market growth.

Understanding O-zone Telecom's HR Challenges

Employee Turnover

16,12%

1. High absenteeism & turnover affecting workforce stability.

2. Difficulty in assessing employee well-being.

3. Diverging perspectives on the root causes of employee dissatisfaction.

Employee Attributes

Environment Satisfaction

2.72

1   4

Job Satisfaction

2.73

1   4

Solving O-zone's HR Challenges

1 Identify the root causes of employee dissatisfaction using 1470 employee profiles

2 Recommend solutions to support O-zone Telecom's HR challenges & African expansion

Our Technical Solution

A comprehensive analysis of factors affecting attrition

Dataset Analysis and Visualization

Explore and preprocess data to ensure quality and relevance. Correlation Analysis & Detecting Multicollinearity with VIF (Variance Inflation Factor)

Dimensionality Reduction & Clustering

Principal Component Analysis (PCA): Identify key features influencing employee turnover.

K-means Clustering on PCA: Group employees based on similar characteristics for targeted insights.

Predictive Modeling with Random Forest & XGBoost

Used models to train and analyze dataset features to predict employee turnover
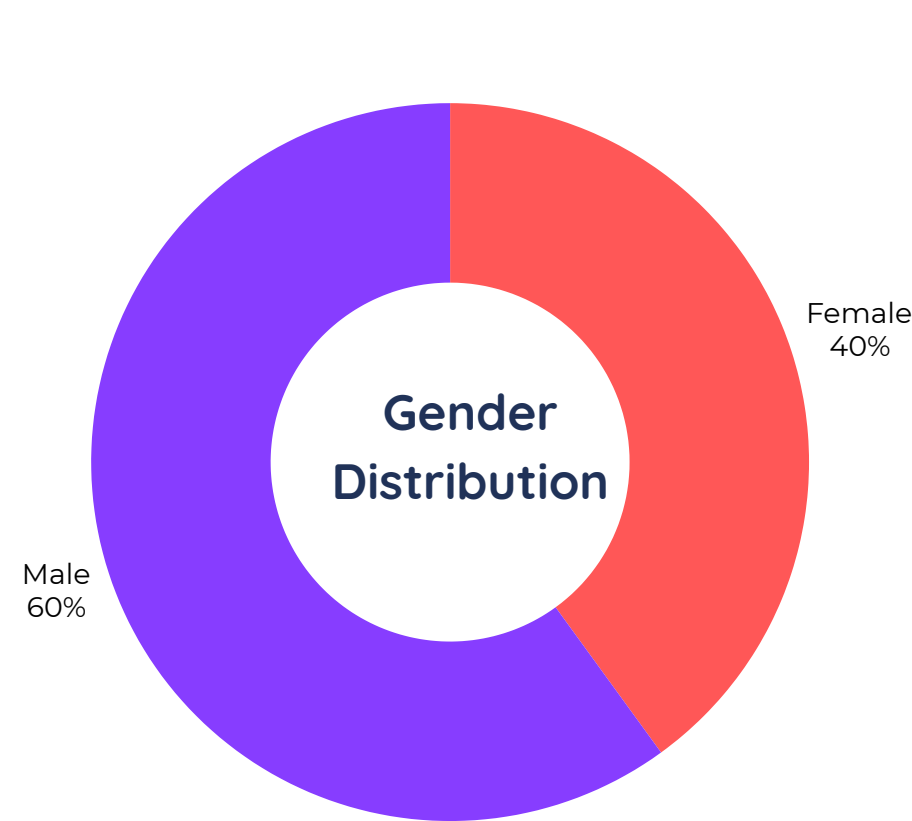**Final Model Selected: XGBoost**
Model Accuracy: 88%
Mean Absolute Error: 0.12

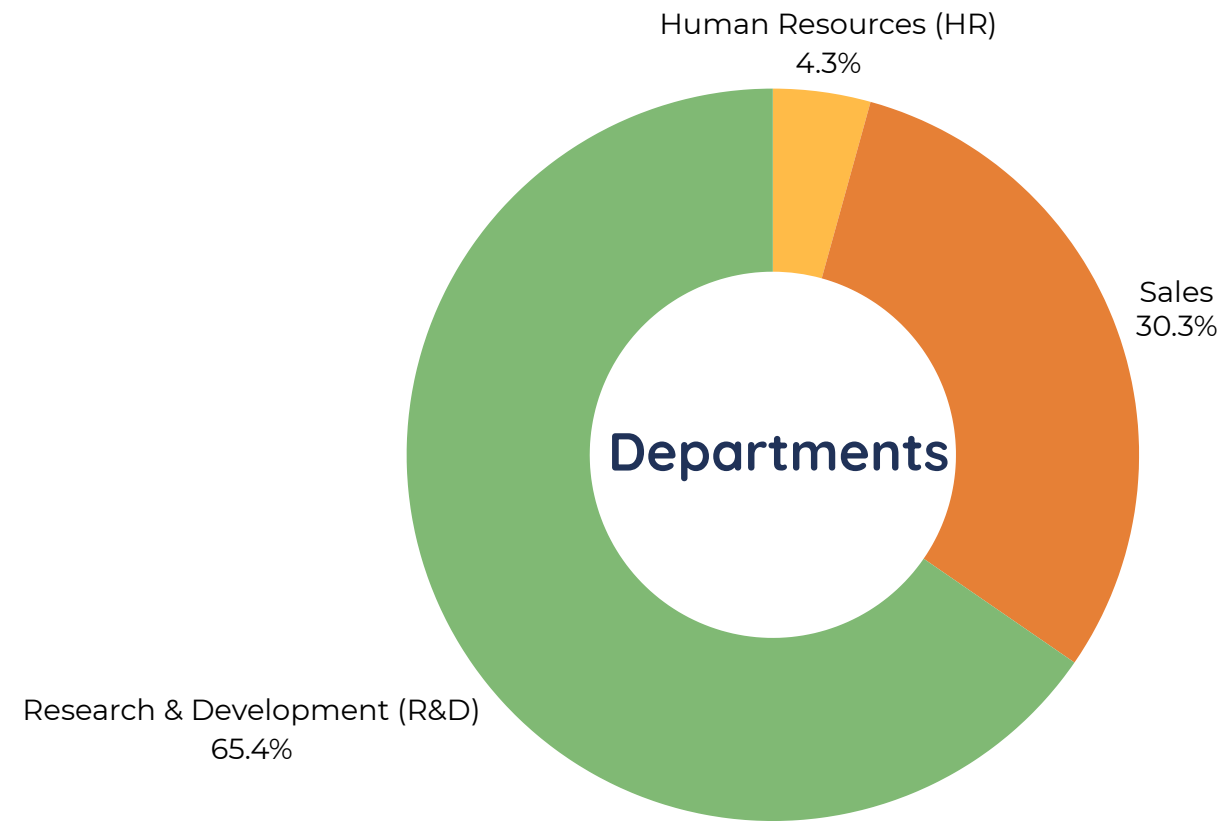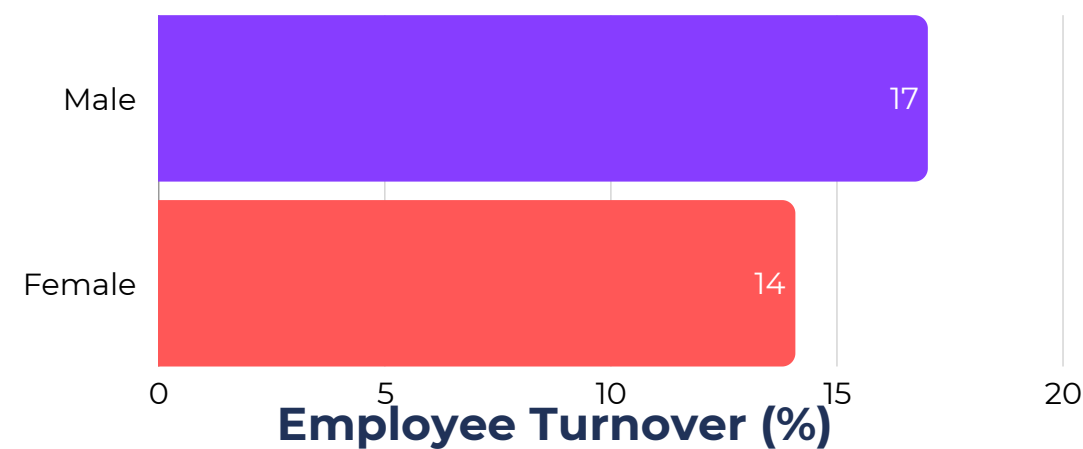### Explainability & Insights using SHAP Analysis

SHAP (SHapley Additive exPlanations) was used to interpret model results by identifying the most impactful factors driving attrition.

Demographics of O-Zone Telecom


Gender Distribution

Female 40%
Male 60%

Men have the **highest turnover** across multiple categories, especially in job roles with Laboratory Technicians and Research Scientists.

31% more men said **'Yes' to Overtime** than women.

Male 17
Female 14

Employee Turnover (%)

Departments

Human Resources (HR) 4.3%
Sales 30.3%
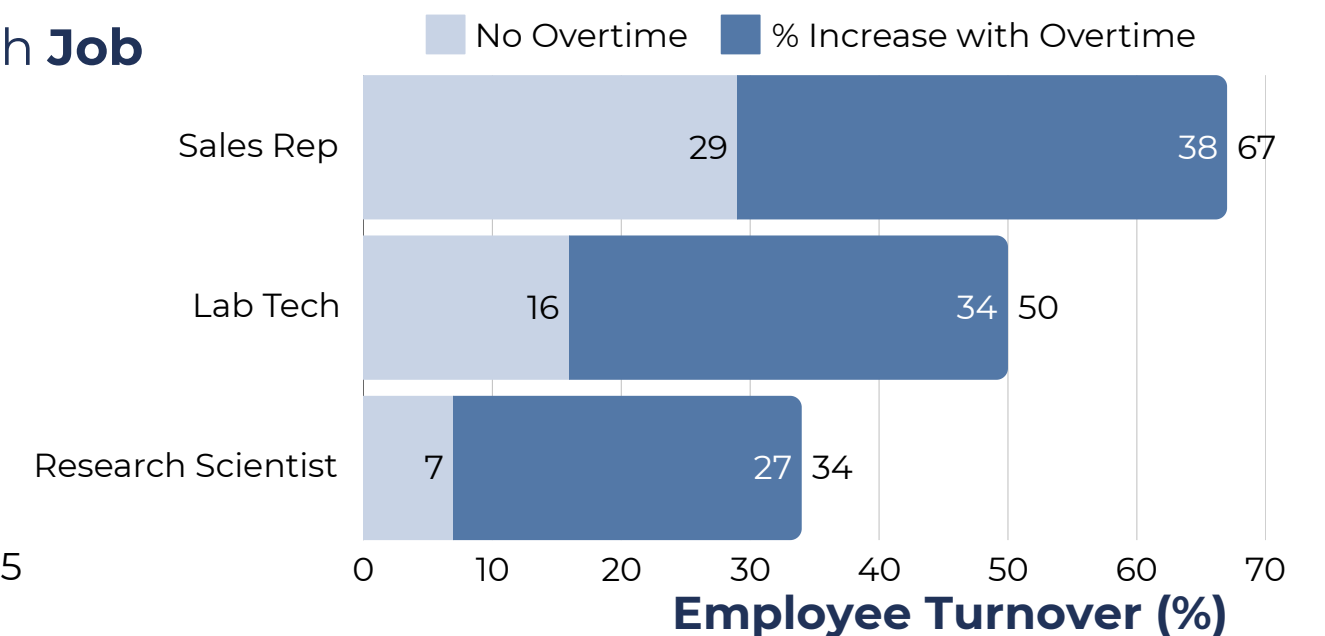Research & Development (R&D) 65.4%

Sales has the **highest turnover** followed by **Human Resources** and **R&D.** However, **R&D** has the **most employees who left the company**
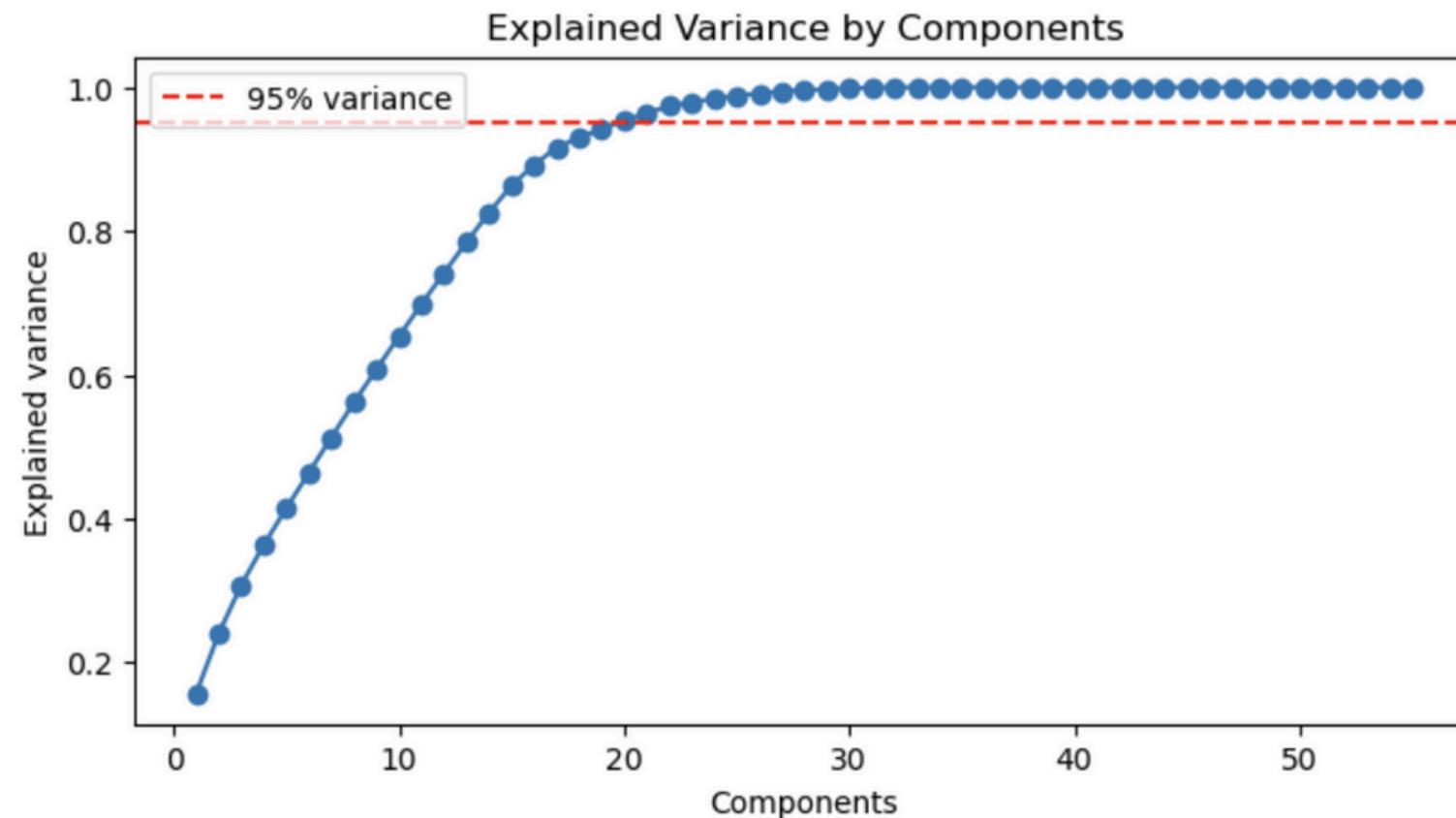
Across all departments, employees with **Job Levels 1** and **3 lead turnover.**

Sales 21
R&D 14
HR 19

Employee Turnover (%)

Overtime

Yes 28.3%
No 71.7%
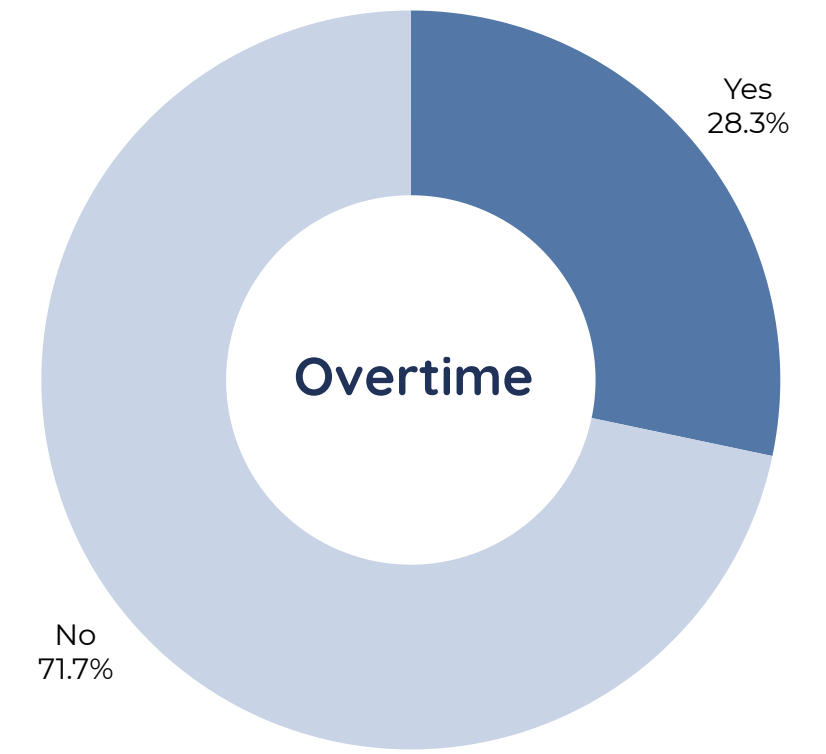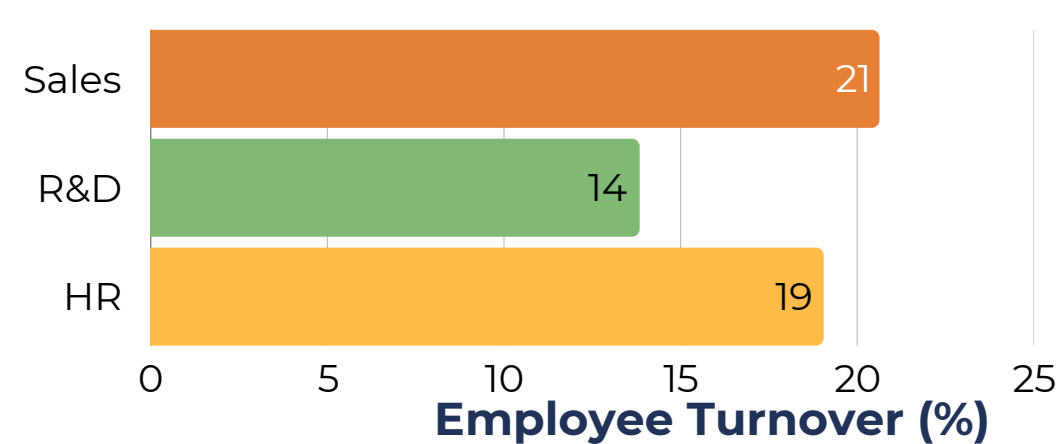
Laboratory Technicians, Research Scientists, and **Sales Representatives** who said **'Yes' to Overtime** have the **highest increases in turnover.**

No Overtime   % Increase with Overtime

Sales Rep 29   38   67
Lab Tech 16   34   50
Research Scientist 7   27   34

Employee Turnover (%)

An Analysis of O-Zone Telecom

Explained Variance by Components

K-means Clustering on PCA Components
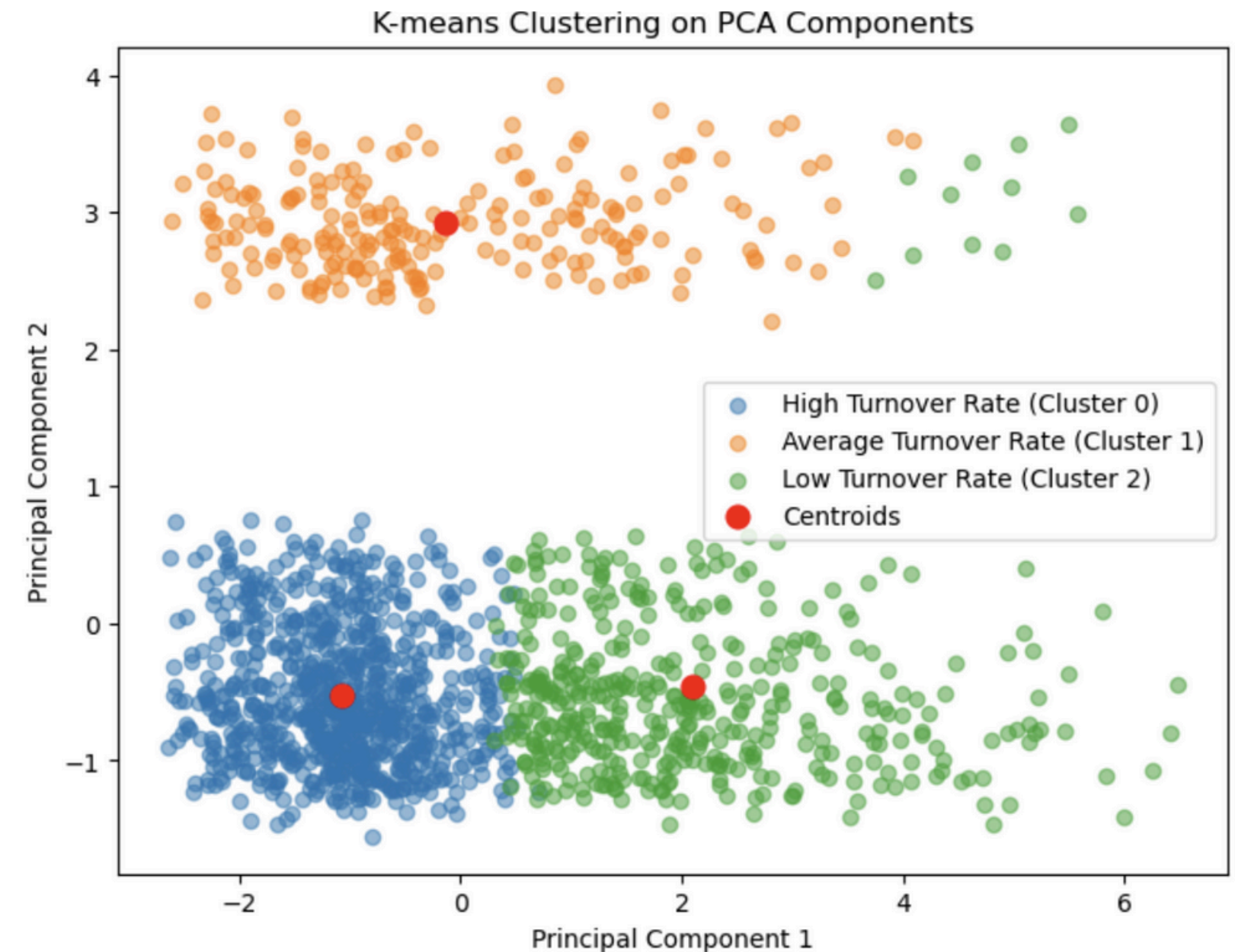

K-Means Clustering on PCA Components:

1 Concluded that **22 principle components** are needed to explain 95% of the variance

2 Identified **3 optimal clusters** using the Elbow Method
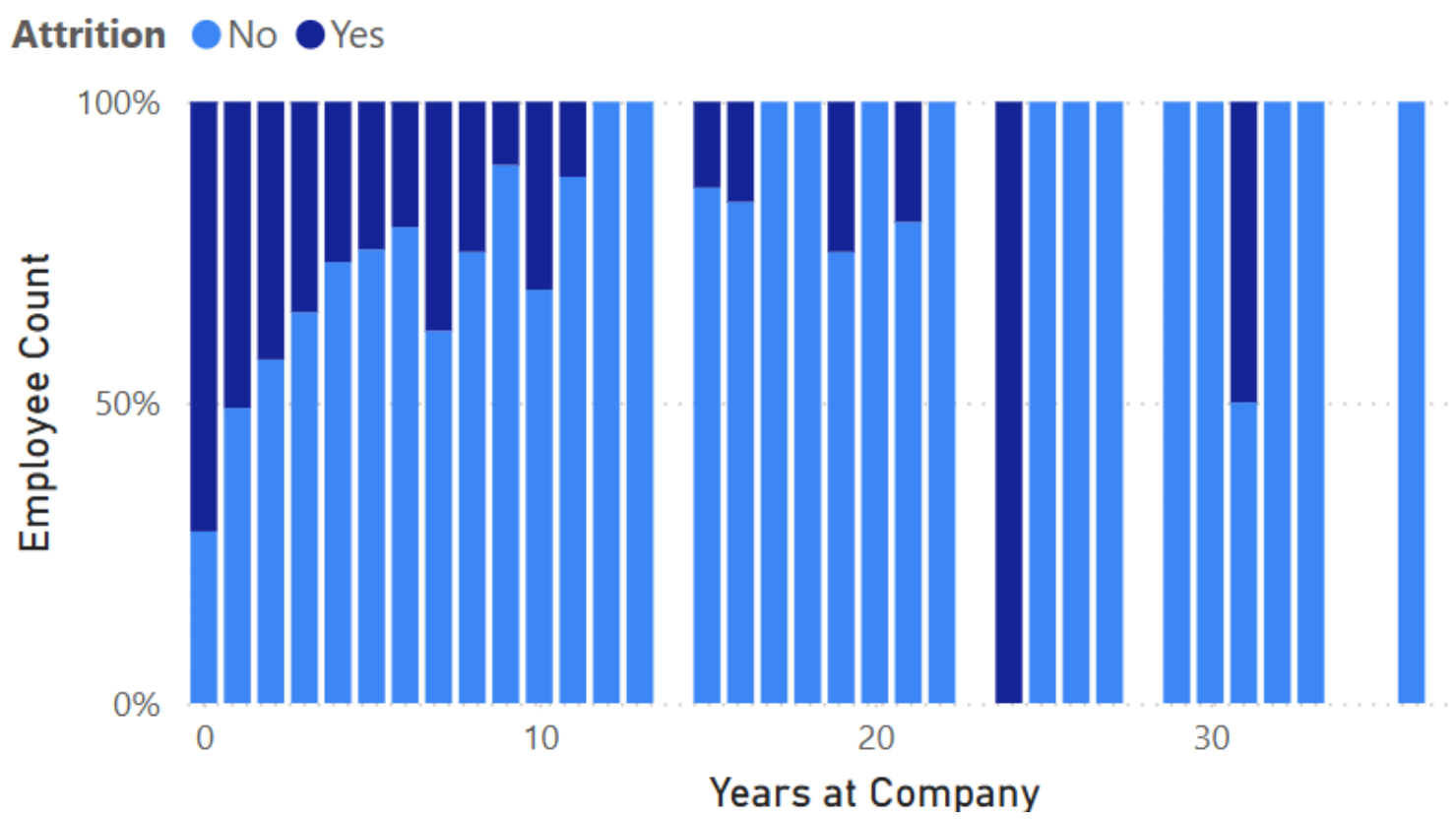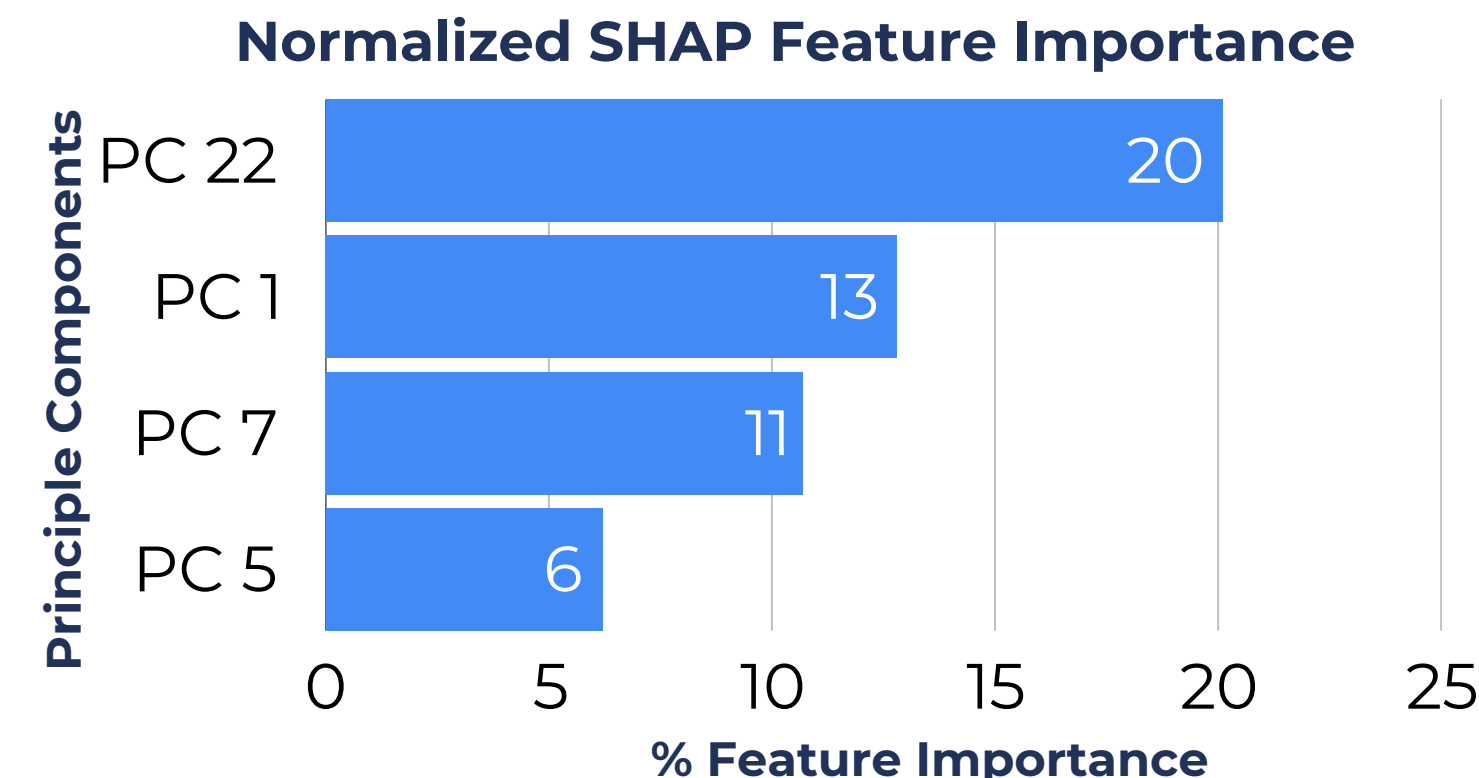
3 **Segmented Clusters based on Employee Turnover Rate**

A significant portion of employees form part of 'High Turnover Rate' cluster (turnover ~18%) highlighting the need for targeted HR strategies

Summary of Key Factors affecting Attrition

Normalized SHAP Feature Importance

Overtime: Leads to workload imbalance and burnout, currently 30,53% turnover for employees who do overtime.

Company & Role Tenure: More stability in longer tenures despite possible stagnation due to lack of managerial or job role changes

Research Scientist/Lab Technician: These job roles face different workload expectations or career progression paths

Gender: Possible disparities in workload or promotions

Commute Distance: Longer commutes can contribute to employee fatigue.

Work Satisfaction: Low job or environment satisfaction may lead to decreased productivity which results higher attrition.

Compensation: Competitive pay and incentives especially for employees who work overtime

Retain Top Talent at O-Zone Telecom

Overtime Policy Regulation

Work-Hour Limit: Minimize burnout through an overtime threshold (e.g 10 hours/week)

Compensation: Increased overtime pay or time off in lieu (TOIL) to improve job satisfaction

Simulate HR models to better understand moderator and mediating effects of Attrition using tools like SAP SuccessFactors or Workday

Reviving the Organizational Structure

Internal Mobility Program: 3-5 year rotation of managers

Career Specialization Tracks: clear career pathways for technical fields

Monitor & Track: HRIS tools to track employee involvement and intervene early

Suggested Tools: Workday, SAP SuccessFactors

Tailored Learning & Career Development

In-house mentorship & upskilling programs for newer employees (mainly job level 1) and leadership training for job levels 3 and above (usually longer tenures).

Structured career growth plan for employees who have spent longer periods of time in the same role.

Suggested tools: SAP SuccessFactors for succession and career planning, Qualtrics for surveys

Adaptive Work Models

Integrate hybrid or flexible hours where possible to reduce stress related to commuting to work

Company Transport: provide transport to support employees and improve job satisfaction

Suggested Tools: UKG Pro, Workday

Next Steps

1 Conduct in depth exit-surveys and interviews to gain insight on current processes & reasons for turnover
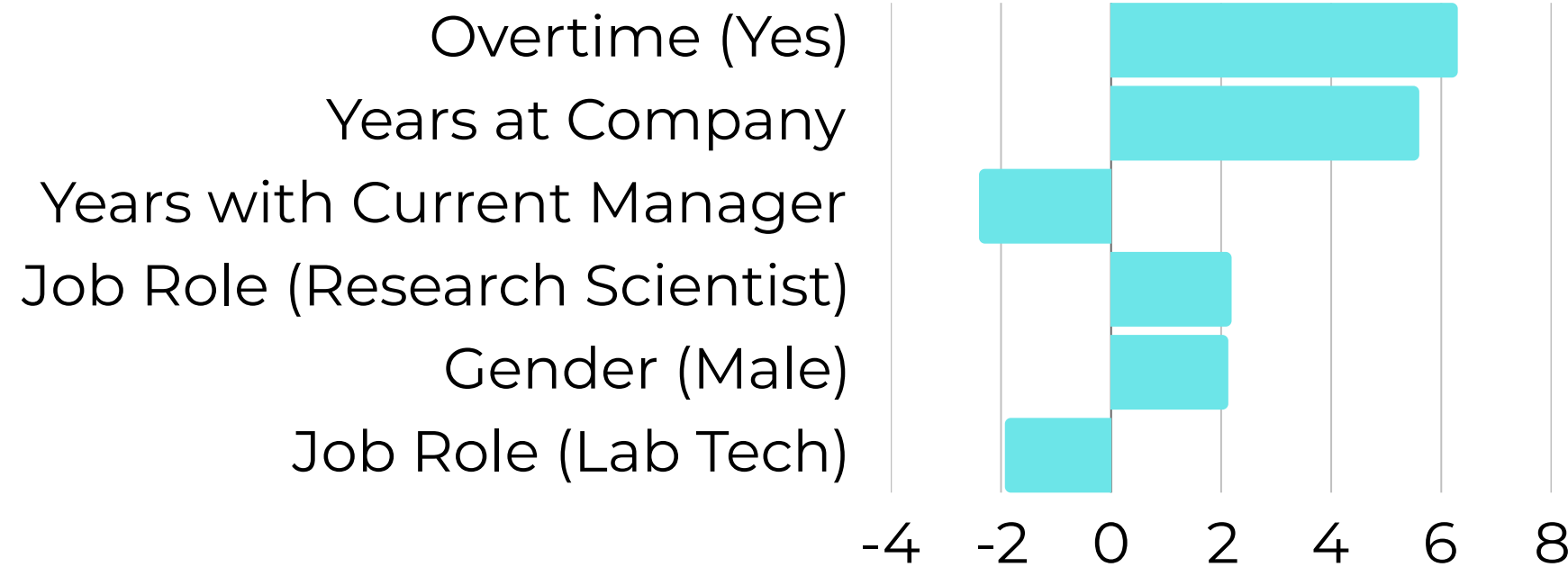
2 Audit Existing HRIS Tools and Processes

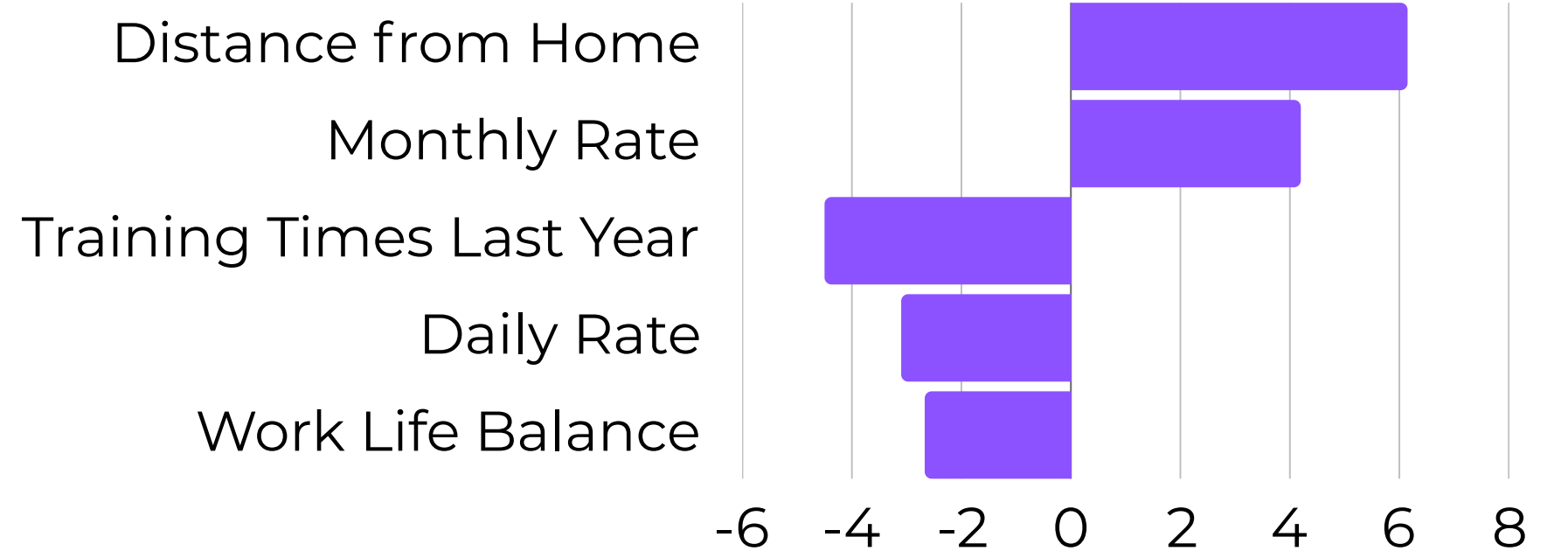**3** Pilot Internal Mobility & Career Growth Programs and use HRIS tools to analyze their adoption

Thank You

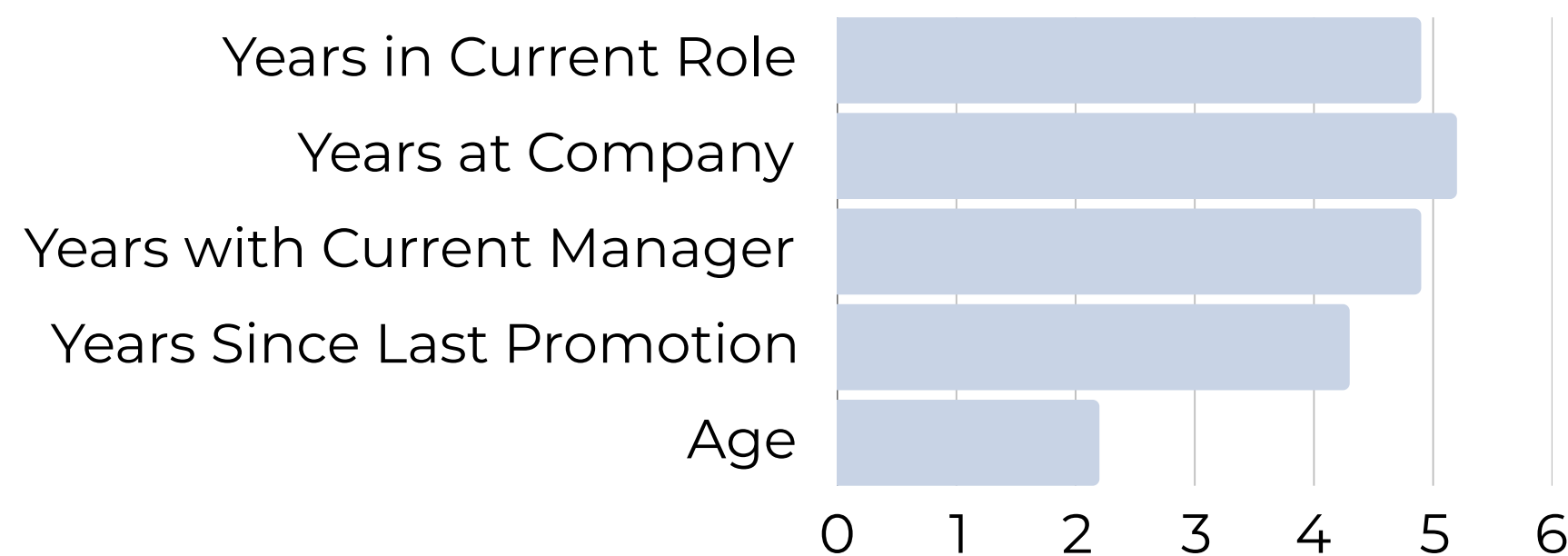# Appendix: Factors Impacting Employee Turnover from Top 4 PC's in SHAP Analysis