ATTRITION REPORT

What factors are driving employees to leave our company?

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Executive Summary

The aim of this report is to find the reasons why people leave the company. The data provided is across 10 departments of the company and has recorded 24% employees who left the company. It was observed from the data analysis that the low income is consistently driving the attrition irrespective of other factors like department, satisfaction level, etc.. Only certain departments like HR, accounting and Technical saw a high attrition even for medium income groups. Too much work on the one hand and too less work on the other extreme, both cause employees to leave the company. In terms of the satisfaction level and the workload of the employees, there were three clusters observed with high attrition. First cluster has a lower satisfaction level and high working hours. They seem to be overburdened with work. Cluster 2 is opposite of cluster 1 with employees with low working hours and moderate satisfaction. They are employees who are not satisfied with the amount of work/learning in the company. Cluster 3 has employees with high satisfaction and moderate working hours but low salaries. Salary seems to be the reason that employees in this cluster attrite.

Exploratory Data Analysis

To get to the results, we first need to understand the data at hand. Some quick and relevant results to get a better understanding of the data are attached here. **76%** of the employees from whom the data was collected did not leave the company while **~24%** of employees answering the questions in the data have already left the company as shown in Figure 1. The features that are different for these 24% employees will help us understand what causes them to leave.
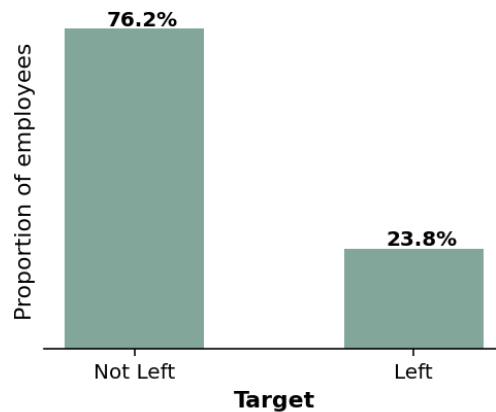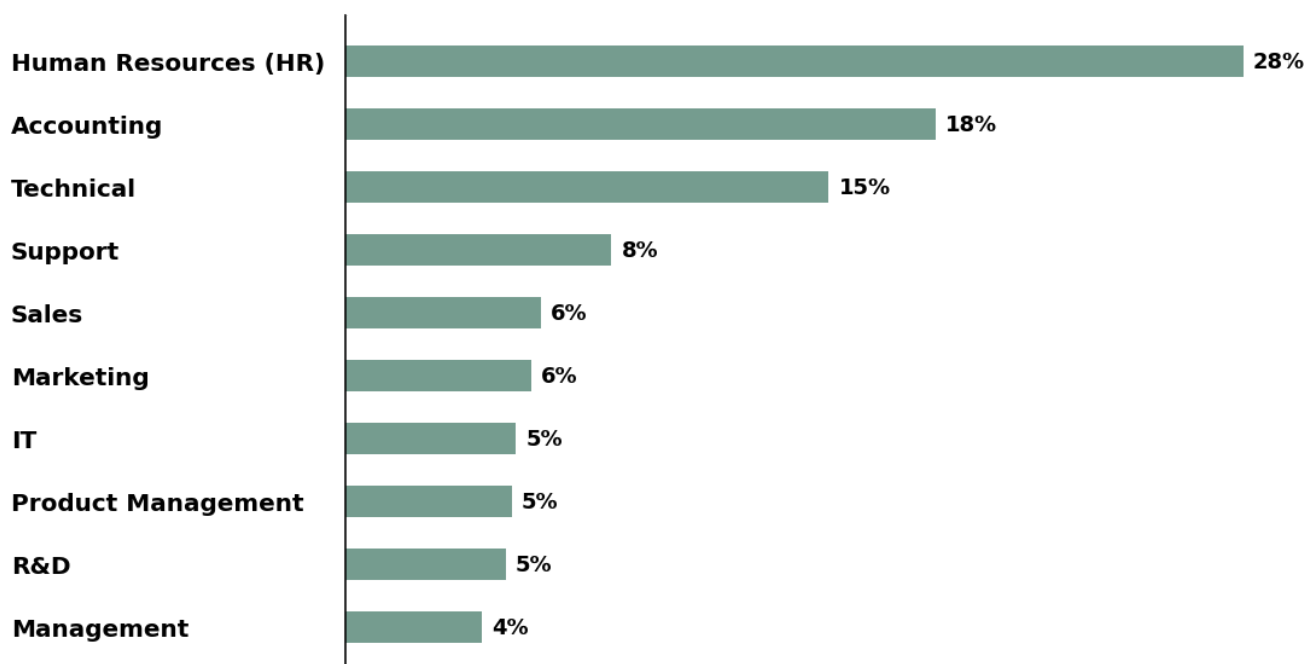

Figure 1: **Proportion of the target variable**

The employees across 10 departments have supported the data. **Human Resources** is the largest department with **28% employees** while the smallest department is **Management** with only **4% employees**.

While exploring data, promotion in the last 5 years looked to be a good reason that the employees leave the company but the proportion of promoted employees in the last 5 years is **only 2%**. Though the attrition rate is very different (**24% for not promoted group vs 6% for promoted group**) in the two groups, the data is too less to comment using this feature.

**Promotion in last 5 years - distribution & attrition rate**
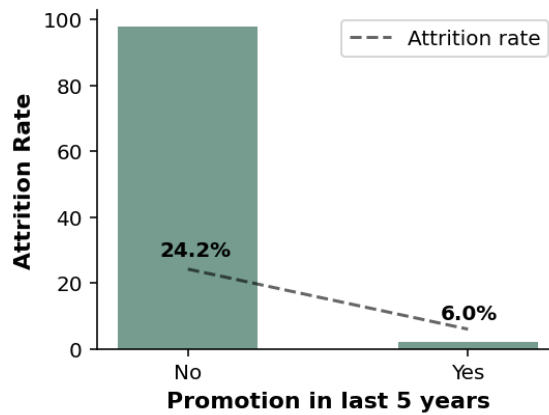
Figure 3: Promotion in last 5 years' distribution and attrition rate

Furthermore, it can be observed that around **23-44%** of people who left the company had commute time in the range of 3 to 5 hours. While around 14-29% of people who choose to stay have 2-4 hours of commute time. The average commute time for people who left is 3.87 h whereas it's 3.38 h for people who did not leave the company. The number of employees commuting for more than 7 hours are very less so we can ignore them.

Relationship between Commute Time and Percentages of Employees
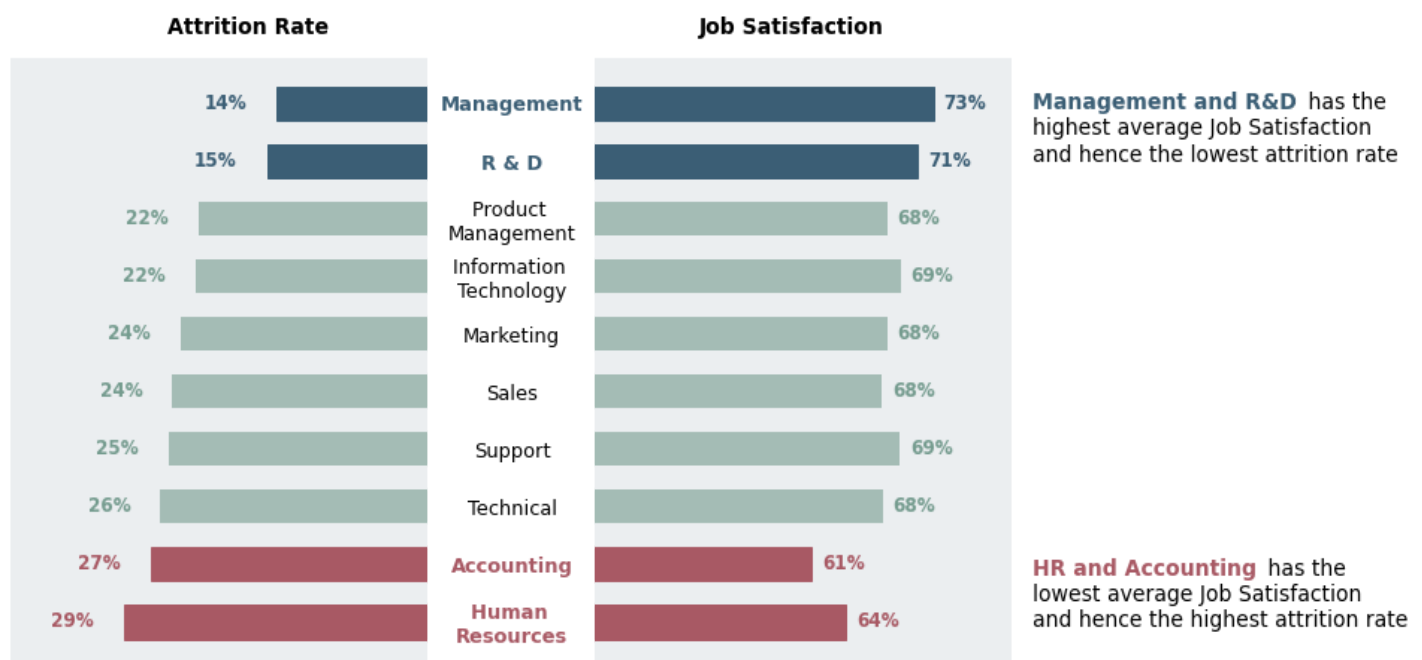(For employees who left and choose to stay)
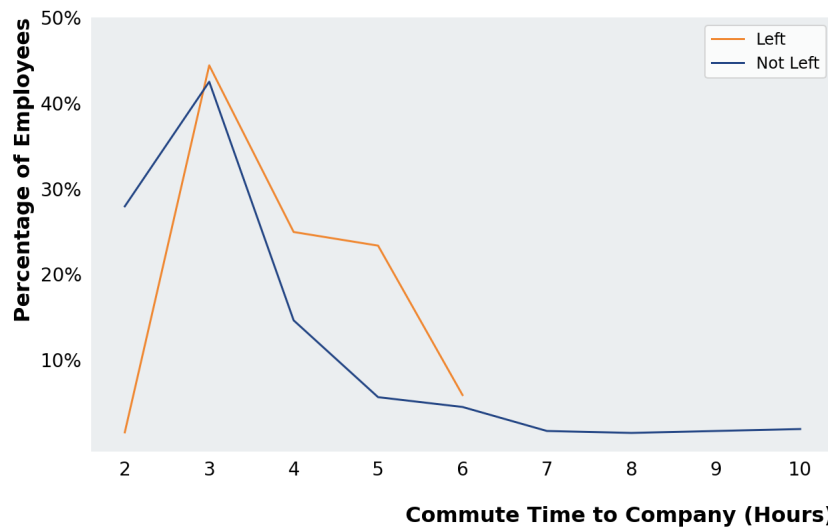
Figure 4: Relationship between Commute Time and Employees Leaving/Staying

Department Level Analysis

An employee's decision of resigning or retaining a company depends on a variety of factors like job satisfaction, salary, average working hours, commute time. All these factors vary considerably across the different departments in our company. Hence the first logical step would be to direct our analysis to the department level. Instead of looking at the average Job satisfaction (which is very similar for all the departments), we decided to analyse the number of people who have a job satisfaction of more than 0.5. We take this value to be the **minimal job satisfaction level** required to retain an employee in a company. Here's a view of the job satisfaction and attrition rate within each department.


Figure 5: **Comparison of attrition rate and job satisfaction for each department**

We observe that **more than 70%** of the employees in the **Management** and **Research & Development** departments have a minimal job satisfaction level (i.e. job satisfaction level greater than 0.5). This accounts for their low attrition levels. For **Human Resources** and **Accounting** departments, we see a lower number of employees with minimal job satisfaction. Hence these departments have higher attrition rate.

Apart from the satisfaction level, it's observed that the salary groups also show a clear trend in driving attrition in the company. Most of the employees in **low** salary groups have attrited whereas the employees in **high** salary groups have stayed with the company. This observation is consistent across all the departments. Only for the three departments with highest attrition levels, **Human Resources, Accounting and Technical**, the attrition rate is higher in the **medium** salary group compared to the other departments because of the low satisfaction level. This is shown in the figure 6 below.

Attrition Rate by salary groups for each department

Low Salary consistently shows high attrition rates across departments
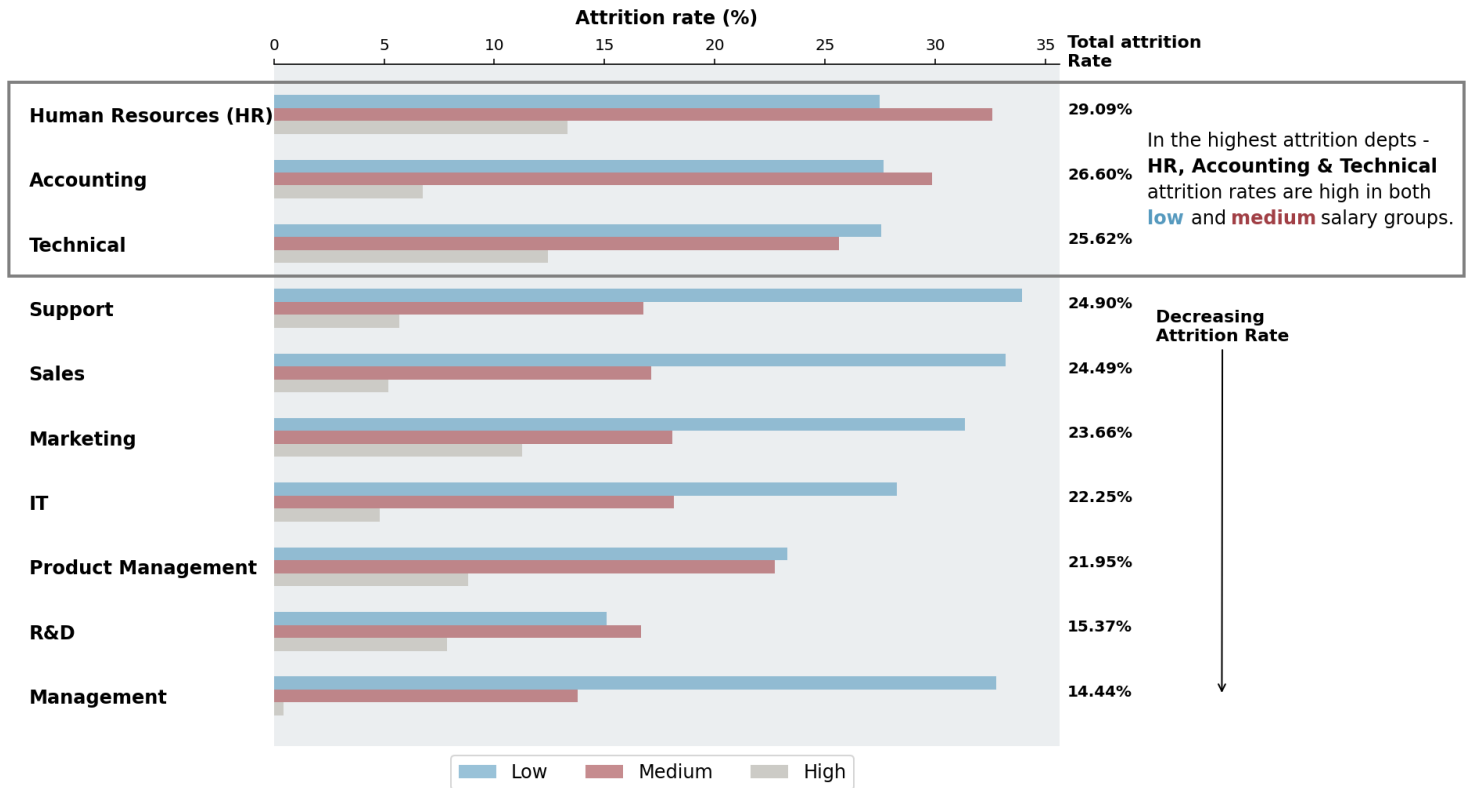

Figure 6: Attrition Rate by salary groups for each department

Cluster Level Analysis

Next, we will analyze the **scatter plot** between **average monthly hours** and **satisfaction level** to search for clusters/groups with similar reasons for attrition. The main reasons for choosing these variables for our plot is that both are continuous variables. Secondly we want to look at the relationship between Job satisfaction and the amount of workload the employees have and whether they are satisfied with the amount of work.
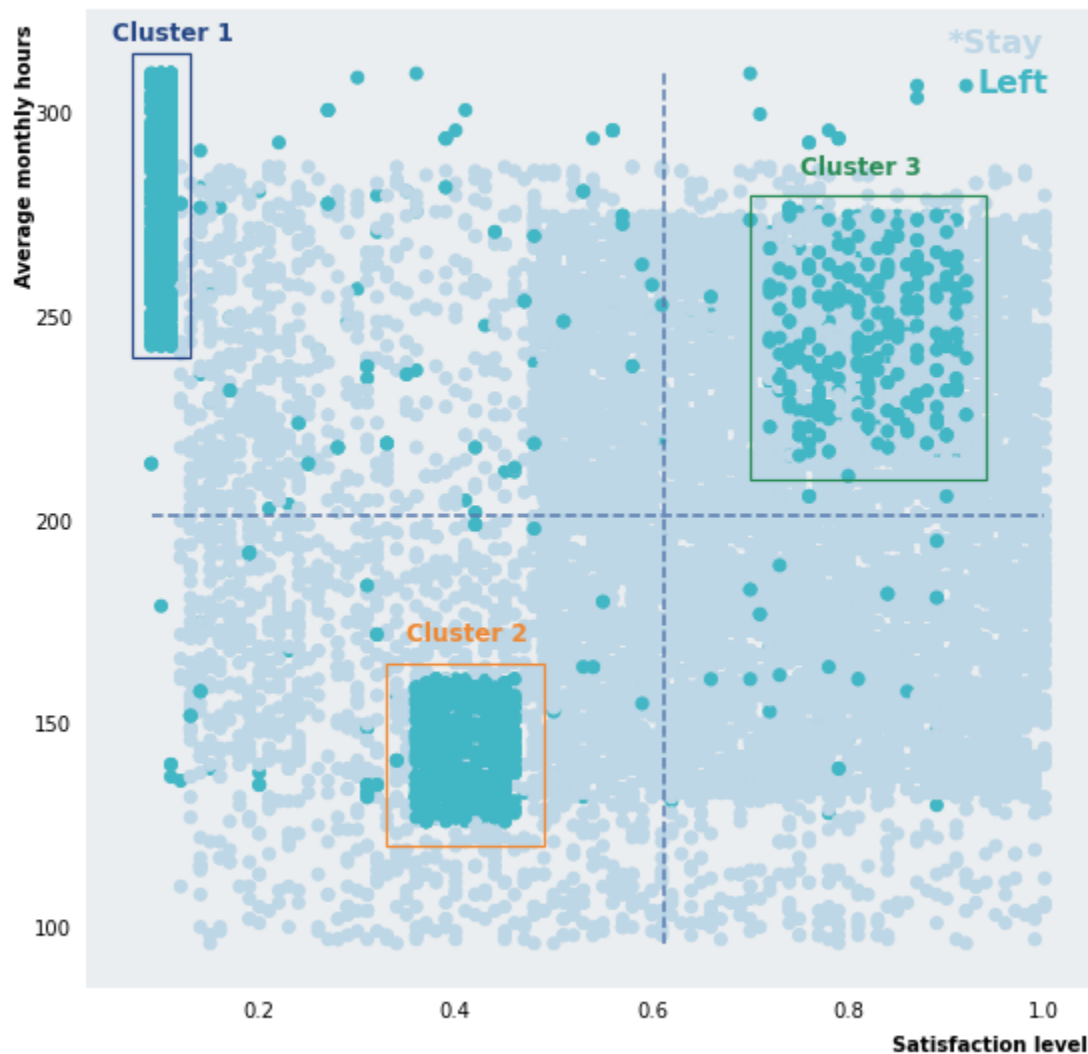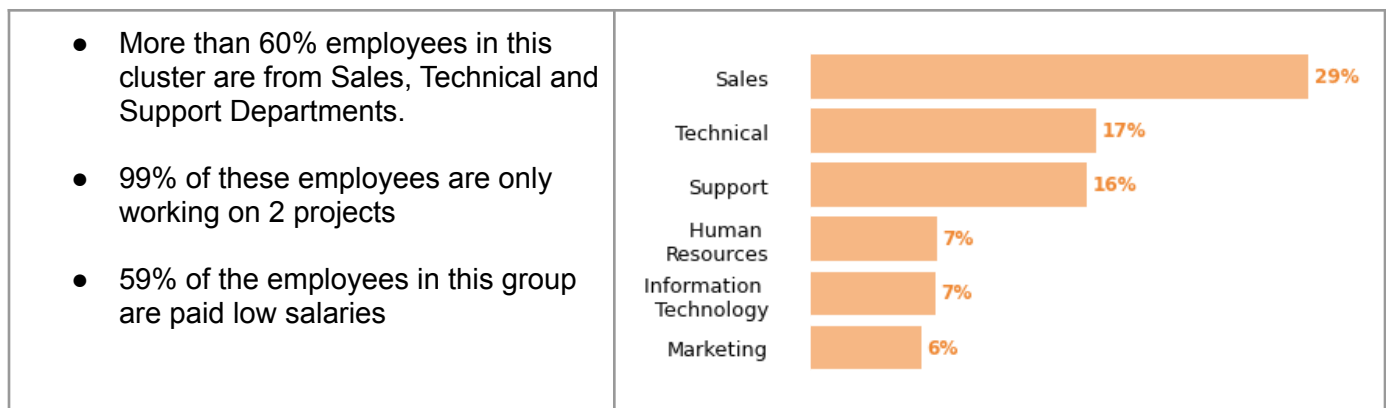

Figure 7: **Identifying clusters of attriting employees between average monthly hours and satisfaction level**
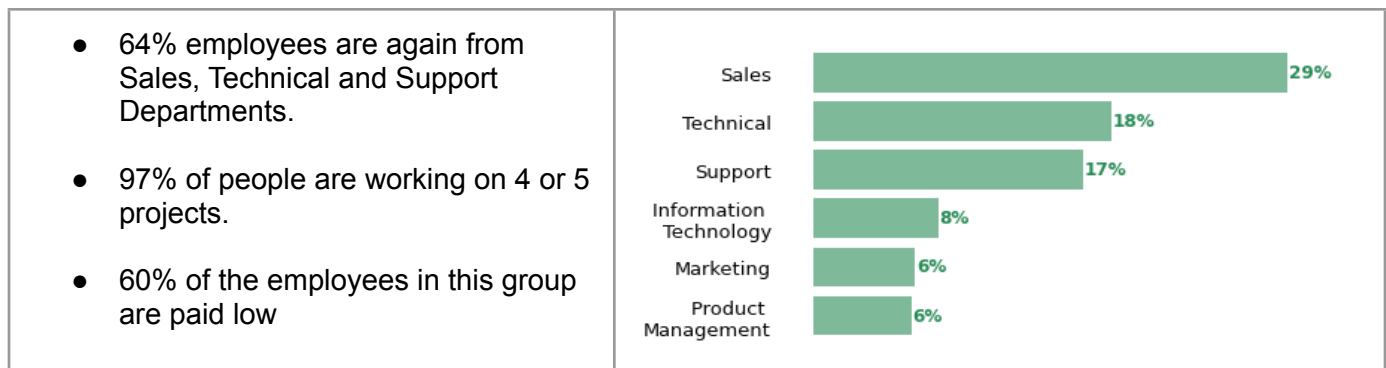
Cluster 1 denotes people who are least satisfied and are overworked with average working hours ranging from around 250 to 300 hours. This high average working hours might be the reason for this group of people leaving the company.

- Around 60% employees of this cluster are from Sales, Technical and Support Departments

- 94% of them are working on 6 or 7 projects

- 98% of these employees have low salaries

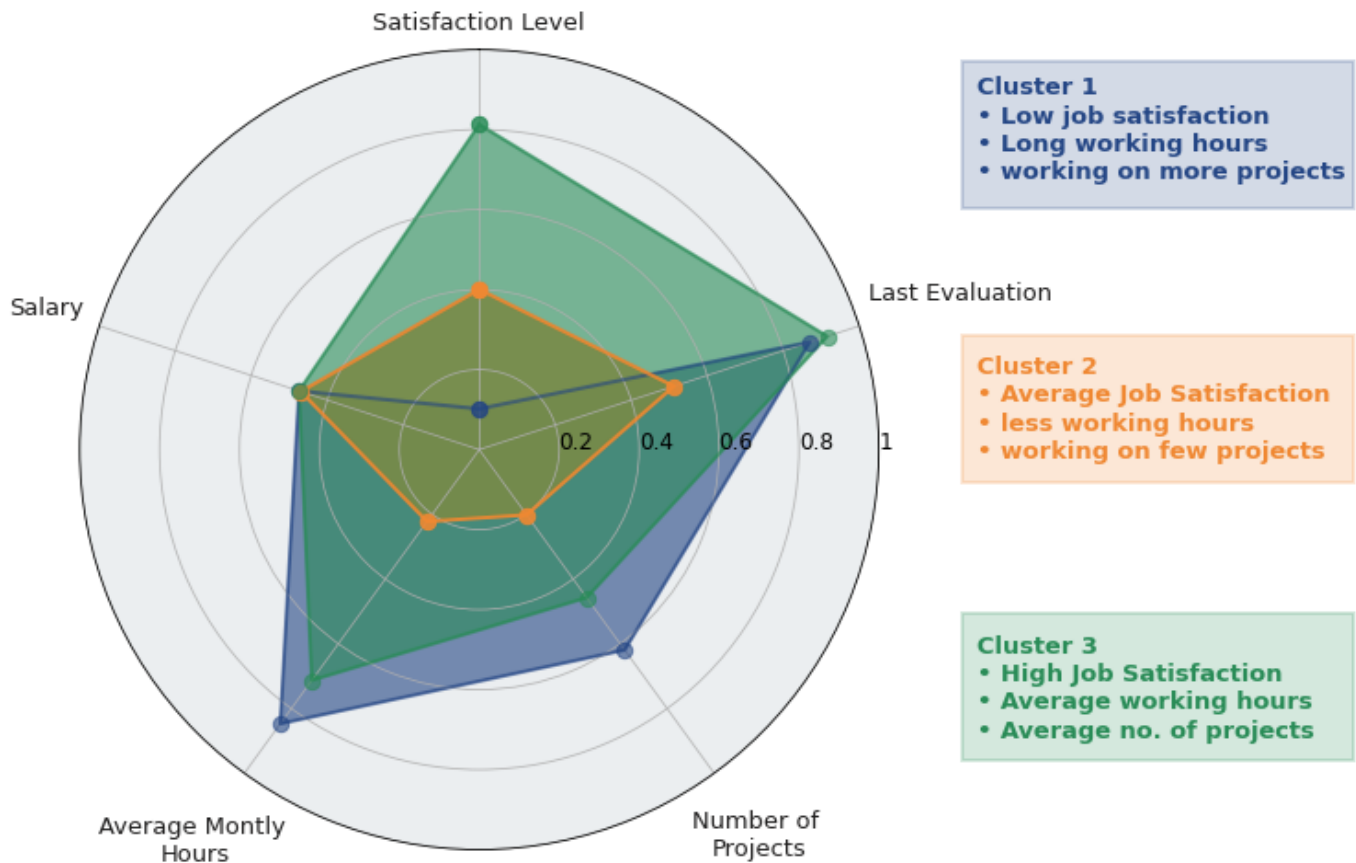| Department	Percentage
Sales	26%
Technical	22%
Support	14%
Information Technology	10%
Accounting	6%
Human Resources	5%
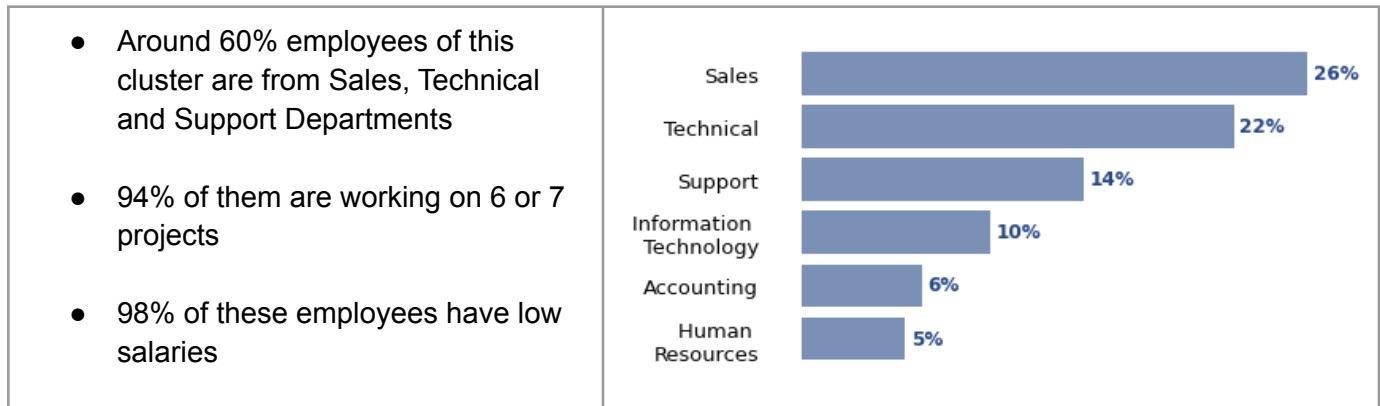
Cluster 2 denotes people who are moderately satisfied and have lower average working hours around 150 hours. The lack of meaningful work might be the reason for this particular group of people leaving the company.

- More than 60% employees in this cluster are from Sales, Technical and Support Departments.

- 99% of these employees are only working on 2 projects

- 59% of the employees in this group are paid low salaries

Department	Percentage
Sales	29%
Technical	17%
Support	16%
Human Resources	7%
Information Technology	7%
Marketing	6%

Cluster 3 denotes people who are most satisfied and have high average working hours around 250 hours. These are the hardest working people that drive the company forward. They might be leaving the company for some better paying offers from rival companies.

- 64% employees are again from Sales, Technical and Support Departments.

- 97% of people are working on 4 or 5 projects.

- 60% of the employees in this group are paid low

Department	Percentage
Sales	29%
Technical	18%
Support	17%
Information Technology	8%
Marketing	6%
Product Management	6%

Figure 8: Detailed analysis of the clusters with high attrition

- Employees in the **first cluster** have the least job satisfaction, long working hours and higher projects. So the reason for their attrition could be **low pay and high workload**.

- Most employees in the **second cluster** worked on only 2 projects, and that too for lesser working hours. Their satisfaction level is average, which implies that they might **not be getting enough responsibilities** as per their expectations and hence, they might have switched to other companies for better growth opportunities.

- The **third cluster** has the highest job satisfaction among the three groups. The employees in this group work on average number of projects and for average working hours. Hence it looks like the only strong reason that supports their attrition is **low pay**.

Conclusion/Recommendations

Companies spend a lot of resources in terms of time and money in onboarding and training their employees. If experienced employees who are valuable to a company's growth leave, it is a big loss to the company. From our detailed exploratory data analysis on our company's data, we conclude that there are certain important factors which are driving our attrition, viz., **low job satisfaction**, **low salary**, **very high** or **below par working hours**. While promotion and higher commute time to the office seems to be an important factor, in general, for attrition but our data doesn't support this with very strong evidence.

Further, to prevent people from attriting because of low salaries, valuable employees should be paid at least **at par with the market rate**. It would be in the company's best interests to keep employees contented by **promoting a higher number of people** more often than the current status. Also, **reshuffling of project responsibilities** of overburdened employees to people who are leaving the company owing to less work, would cater to the needs of employees on both extremes and thereby reduce the overall attrition rate.