



Factors Affecting Attrition





Research Method

In this project, keeping the company at focal point, we analysed the variables that affected attrition. Since the company has to be the focal point, all questions are from the company's perspective. For our analysis we used Pandas, Matplotlib and Seaborn libraries in python. The following structure was followed for analysis:

Introduction	Explaining why attrition is a concern and explaining the variables present in the dataset.
Univariate Analysis of Variables	To understand the type of variable, count, check for any null values and analyse mean, median, minimum and maximum values of necessary variables.
Bivariate Analysis of Variables	To understand the variables that affect attrition.
Hypotheses & Inferences	Answering questions that the company would want to know.
Conclusion	Presenting significant findings of the study.



WHY ATTRITION IS A CONCERN?

1. Company faces difficulty in finding and recruiting good talent.
2. Time consumed in the process of recruitment of new employee for the same profile increases.
3. Hiring and giving the employees required training takes ample time. Also it increases the cost to the company which can be minimised by optimising the attrition rate .
4. Company with higher attrition has a bad impact among its market leaders as it questions the company's credibility in terms of work ethics.
5. Retaining good talent has always been a serious issue for company as they need to have good and talented pool of employees to perform and achieve the required targets year on year.
6. Ultimately company or any organization is made up of employee who give their best and contribute to company's growth.

Variables in the study

1470

TOTAL EMPLOYEES UNDER OUR STUDY

Categorical Variables	Numerical Variables
<ul style="list-style-type: none">• Attrition• Business Travel• Department• Education Field• Environment Satisfaction• Gender• Job Involvement• Job Level• Job Satisfaction• Marital Status• Overtime• Work Life Balance	<ul style="list-style-type: none">• Monthly Income• Total Working Years• Years at Company• Years in Current Role• Years since Last promotion• Years with Current Manager• Distance from Home

UNIVARIATE ANALYSIS OF VARIABLES



Univariate Analysis of Variables

- **Attrition:**
Out of all the employees under our study, 237 faced attrition while 1233 did not face attrition.
- **Age:**
The mean age of employees working at the company is 37 years. The youngest employee is 18 years old while the eldest is 60 years old.
- **Business Travel:**
Out of all the employees under our study, 1043 travelled rarely, 277 travelled frequently, 150 never travelled.
- **Department:**
Out of all the employees under our study, 961 belong to Research & Development department, 446 belong to the sales department and 63 belong to the Human Resources Department.
- **Education Field:**
Out of all the employees under our study, 606 have Life Sciences as their education field, 464 have Medical, 159 have Marketing, 132 have Technical degree, 82 have other and 27 have human Resources.



Univariate Analysis of Variables

- **Environment Satisfaction:**

Out of all the employees under our study, 453 employees had environment satisfaction level of three, 446 had environment satisfaction level of four, 287 had environment satisfaction level of two and 284 had environment satisfaction level of one.

- **Gender:**

Out of all the employees under our study, 882 were male and 588 were female.

- **Job Involvement:**

Out of all the employees under our study, 868 employees had Job Involvement level of three, 375 had Job Involvement level of two, 144 had Job Involvement level of four and 83 had Job Involvement level of one.

- **Job Level:**

Out of all the employees under our study, 543 employees had Job Level of one, 534 had Job level of two, 218 had Job Level of three, 106 had Job Level of four and 69 had Job level of five.

- **Job Satisfaction:**

Out of all the employees under our study, 459 employees had Job Satisfaction level of four, 442 had Job Satisfaction level of three, 289 had Job Satisfaction level of one and 280 had Job Satisfaction level of two.



Univariate Analysis of Variables

- **Marital Status:**

Out of all the employees under our study, 673 are married, 470 are single and 327 are divorced.

- **Monthly Income::**

The mean monthly income of employees is 6500 with minimum monthly income being 1000 and maximum being 20000.

- **Overtime:**

Out of all the employees under our study, 1054 have not worked overtime and 416 have worked overtime.

- **Total Working Years:**

The mean of total working years of all the employees under our study is 11.2 years with 0 years being the minimum value and 40 years being the maximum.

- **Work Life Balance**

Out of all the employees under our study, 893 employees had Work Life Balance level of three, 344 had Work Life Balance level of two, 153 had Work Life Balance level of four and 80 had Work Life Balance level of one.



Univariate Analysis of Variables

- **Years at company:**
On an average, the employees of the company under our study, have worked in the company for 7 years with 0 years being the minimum time in the company and 40 years being the maximum.
- **Years with Current Manager**
On an average, employees of the company under our study, have worked under the same manager for roughly 4 years with 0 years being the minimum time worked under the current manager and 17 years being the max,
- **Years in Current role:**
On an average, employees of the company under our study, have spent around 4 years in the current role with 0 years being the minimum time worked in the current role and 18 years being the max,
- **Years since Last Promotion:**
On an average, for the employees of the company under our study it has been roughly 2 years since their last promotion with 0 years being the minimum time since promotion and 15 being the max,
- **Distance from Home:**
On an average, the employees of the company under our study have to travel 9 kms to reach office with 1 km being the shortest distance an employee has to cover and 29 kms being the maximum distance.



BIVARIATE ANALYSIS OF VARIABLES

Analysing the effect of different variables on
attrition





Discussion

1

Which department has the maximum attrition rate within in the department?

Proportionally, sales has the highest attrition rate at approx 21%. Followed closely by human resources at 19% and then R&D at 13%. Thus, people in R&D are more likely to stay.

3

Does more business travel lead to higher attrition?

From our analysis, it has been observed that as the travel frequency increases, attrition also increases.

2

Does the company have an attrition rate according to the industry standards.

The company has an attrition rate of 16.1% which is more than the industry standard of 10%.

4

Does higher Job involvement lead to lower attrition?

It has been observed that as Job involvement increases, attrition rate tends to decrease.



Discussion

5

Does age contribute to attrition?

The employees who stayed have an average of 37.5 years and employees who left have an average age of 33.6 years. Thus, younger employees are more likely to leave.

7

A lower income leads to more attrition

Employees who are leaving on an average earn 30% less than employees who stayed.

6

Working overtime leads to more attrition?

People have who worked over time are roughly 3 times more likely to leave.

8

Having a better Environment Satisfaction lead to lower attrition?

It has been noted that a higher Environment satisfaction leads to lower attrition.



Discussion

9

Does marital status affect attrition?

We have observed that single people are twice as likely to leave the company than married people.

10

What is the impact of Job Satisfaction on attrition?

Through our analysis, it can be seen that, a higher job satisfaction leads to lower attrition.

11

Do people with better work life balance have more chance of staying at the company?

From our analysis, we concur that people with the lowest work life balance are leaving the company.

12

Having a better Environment Satisfaction lead to lower attrition?

It has been noted that a higher Environment satisfaction leads to lower attrition.



CONCLUSION

After completing our analysis of the attrition dataset , the following conclusions can be made :-

1. Job satisfaction & environment satisfaction plays a key role in determining attrition.
2. Younger and less experienced employees are more likely to change jobs.
3. Single employees are less likely to stay with the company.
4. Overtime was the key factor which led many employees to leave the job.
5. Sales and HR department have highest attrition rate of around 20% each within their department.

WAY FORWARD

As per our understanding and knowledge of the attrition problem we came up with certain solutions which can help company to minimise the attrition in coming future.

1. Recreational events can be organised with the company for every employee to maintain a good and healthy environment.
2. Rewards and Recognition for employee who are performing well to help improve their morale and increase their job satisfaction.
3. Feedback form to be floated on a regular basis , which will give insights on factors to improve upon
4. Working Process should be optimized to reduce or avoid overtime.