



INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact Factor: 6.078

(Volume 7, Issue 6 - V7I6-1156)

Available online at: <https://www.ijariit.com>

HR Analytics Using Tableau

G. Raghav

guruprasadsubbarayan@yahoo.com

VIT Business School, Chennai, Tamil Nadu

ABSTRACT

The dataset deals with employee details like age, travel profile, department, designation, monthly income, marital status, salary hike, involvement etc.in the company and also attrition rate of the employees in the company. We need to determine the attrition of employees in the company. We also determine the major causes of attrition of employees in the company and to address it.

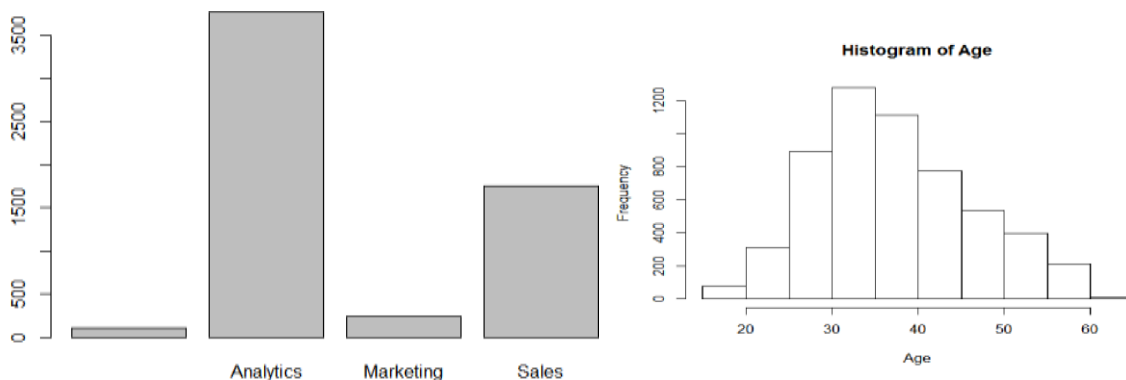
Keywords— HR Analytics, Tableau

1. INTRODUCTION

HR analytics is a data-driven method of improving decisions that impact HR functions. HR analytics depends on the quality of the data collected from HR metrics, such as:

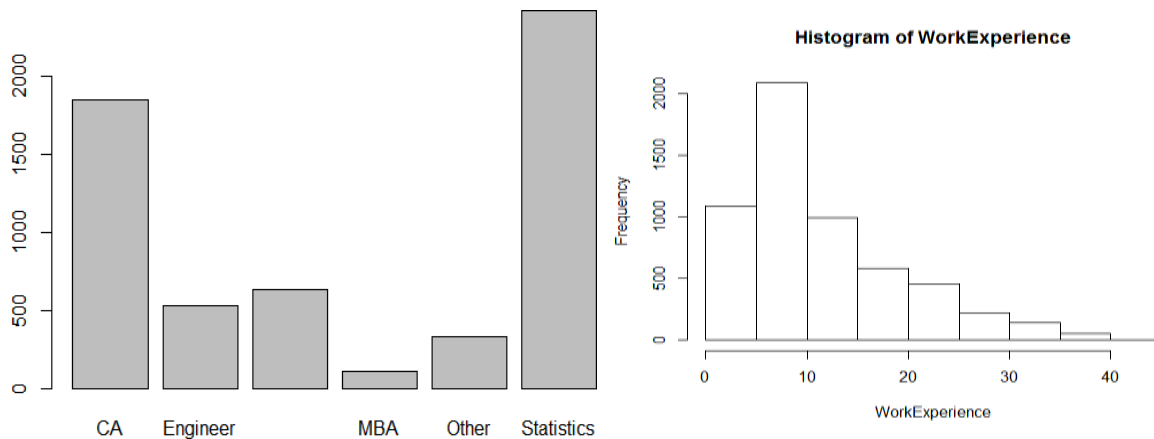
- Time to hire
- Time to fill
- Application dropout rate
- First-year turnover rate
- Top talent retention rate
- Average absenteeism rate
- Training expense per employee
- Employee engagement
- Human capital risk

2. EXPLORATORY DATA ANALYSIS



- We determine that most of the employees in the company are of the age group 30 to 40.
- We determine that most of the employees work in the analytics department and least number of employees work in marketing department.
- We determine that most of the employees in the company work for more than 60 hours in a week and very few employees work for more than 80 hours in a week.
- We determine that most of the employees are of managers and executive's designation in the company and lesser number of employees are VP.

- We determine that there are more male employees than female employees in the company.
- We determine that most of the employees are chartered accountants and statisticians and least number of employees are MBA graduates.
- We determine that most of the employees live within 10km from the company.
- We determine that most of employees in the company have around 5-10 years of work experience.



3. REGRESSION MODELS

3.1 CART Model

- We apply the CART Model to determine the major causes of attrition of employees in the company.
- We use the CART Model since it is a classification problem.
- CART Model can be used to handle both categorical as well as numerical variables.
- Various models such as Naïve Bayes, Random forest and CART have been analysed and CART is found to be the most suitable model due to its higher sensitivity.
- We infer from the CART model that age and travel profile mainly impacts the attrition rate of the employees in the company.
- We determine that employees who are above 23 years of age show higher attrition and employees below 23 years of age show lesser attrition in the company.
- We determine that employees with very frequent travel profile show higher attrition rate and employees with rare or no travel profile show lesser attrition rate in the company.

Model Validation of CART:

Models	Sensitivity	Specificity	Accuracy	Error Rate
CART	84%	80%	82%	18%

3.2 Logistic Regression

- We apply the Logistic Regression Model to determine the major causes of attrition of employees in the company.
- We use the Logistic Regression Model since it is a classification problem.
- Logistic Regression Model can be used to handle numerical variables.
- Various models such as Naïve Bayes, Random forest and Logistic Regression have been analysed and Logistic Regression is found to be the most suitable model due to its higher sensitivity.
- Based on the Logistic Regression model building and implementation we state that Age, Travel Profile, Education Field and Number of companies worked impact the attrition of employees in the company.

Model Validation of Logistic Regression:

Models	Sensitivity	Specificity	Accuracy	Error Rate
Logistic Regression	88%	84%	86%	14%

3.3 KNN Model

- We apply the KNN Model to determine the major causes of attrition of employees in the company.
- We use the KNN Model since it is a classification problem.
- KNN Model can be used to handle numerical variables.
- Various models such as Naïve Bayes, Random forest and KNN have been analysed and KNN is found to be the most suitable model due to its higher sensitivity.
- Based on the KNN model building and implementation we state that Age, Travel Profile, Education Field and Number of companies worked impact the attrition of employees in the company.

Model Validation of KNN:

Models	Sensitivity	Specificity	Accuracy	Error Rate
KNN	82%	78%	80%	20%

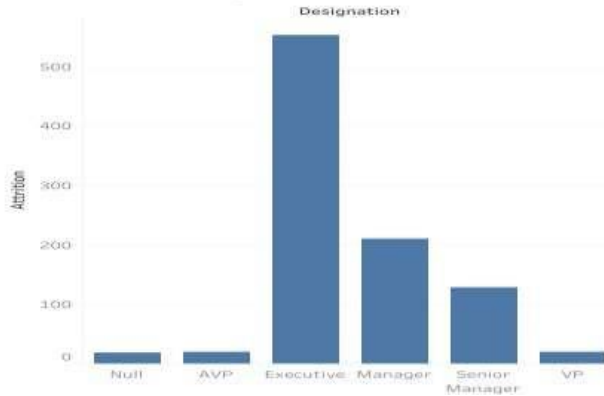
3.4 Interpretation Of Best Model

Models	Sensitivity	Specificity	Accuracy	Error Rate
Logistic Regression	88%	84%	86%	14%
CART	84%	80%	82%	18%
KNN	82%	78%	80%	20%

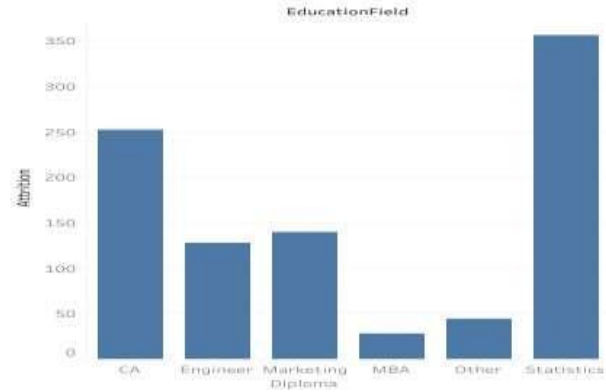
- Based on the above table we infer that the logistic regression model has better accuracy and less error rate than the CART and KNN model.
- Logistic regression model has higher sensitivity (true positive rate) and specificity (false negative rate) than the CART and KNN model.
- Thus, from the table we conclude that Logistic Regression Model is more accurate and robust among all the model

4. CONCLUSION

Attrition vs Designation



Attrition vs Qualification



- We determine that attrition of male employees is more than twice of female employees in the company.
- We determine that attrition of employees is more for those with rare travel profile and attrition of employees is less for those with no travel profile.
- We determine that attrition of employees is more at executive level and attrition of employees is less at VP and AVP level.
- We determine that attrition of employees is more for those from statistics and CA qualification and attrition of employees is less for those with MBA qualification.

REFERENCES

- [1] Tableau
- [2] Udacity
- [3] Coursera
- [4] A Review of: "Now You See It: Simple Visualization Techniques for Quantitative Analysis, by S. C. Few," Oakland, CA: Analytics Press, 2009, ISBN 0-9706019-8-0, xi + 327 pp
- [5] Wiley (2015), Storytelling with Data: A Data Visualization Guide for Business Professionals