University for the Creative Arts

BERLIN SCHOOL OF BUSINESS & INNOVATION

Essay / Assignment Title: HR Analytics Dashboard.

Programme title: VISUALIZATION & STORYTELLING USING TABLEAU.

Name: OYEWOLE OLADIMEJI ABDULQUDUS. (Q1045935)

Year: 2025

CONTENTS

Statement of compliance with academic ethics and the avoidance of plagiarism

I honestly declare that this dissertation is entirely my own work and none of its part has been copied from printed or electronic sources, translated from foreign sources and reproduced from essays of other researchers or students. Wherever I have been based on ideas or other people texts I clearly declare it through the good use of references following academic ethics.

(In the case that is proved that part of the essay does not constitute an original work, but a copy of an already published essay or from another source, the student will be expelled permanently from the postgraduate program).

Name and Surname (Capital letters):

.....OLADIMEJI

OYEWOLE.....

Date: .....26/09/2025...../...../.....

1. Introduction

Over the rapid changes in the world of business, human resources have become not only a resource, but a key factor in the success of the company, thus going beyond the traditional role of an HR department just a cost center. As Alan Murphy (2024) puts it so well, "HR is no longer just about hiring and firing; it's about leveraging data to forecast, strategies and optimize the workforce." Any organization that is not turning to a data-driven HR management approach will normally experience a stuck situation with reactive cycles, where they will be unable to tackle hot issues like high employee turnover, diversity imbalances, and performance inefficiencies. Without the aid of real-time, action-oriented insights, HR leaders will have to rely on their gut feelings, which is likely to result in bad decisions, wrong allocation of resources, and failure to fully utilize strategic possibilities (TurboHire, 2024).

1.1 Problem Statement

This report captures the step-by-step growth of a Tableau interactive HR analytics dashboard project. It is a tool that makes it easy for businesses to access and analyze data about their workforce. The dashboard is a very important platform for HR executives who can thus keep track of key performance indicators (KPI), discover workers who may be thinking of quitting the organization, and evaluate how initiatives in retention and diversity have had an impact.

The project weaves the story of how decision-making based on data leads to the successful tackling of staff-related issues and the building of an organization that can deal with the future well.

1.2 Data Source: IBM HR Analytics Employee Attrition & Performance Dataset

The chosen data for this project is the "IBM HR Analytics Employee Attrition & Performance" dataset available publicly on Kaggle, which was used as the basis for data analysis. This dataset, which is produced by IBM for educational purposes, contains 1,470 employee records and 35 attributes that provide a deeper look at an organization's workforce (AIHR, 2024). It features various employee demographics (Age, Gender, Marital Status), along with job-related measures (Job Role, Department, Monthly Income, Job Satisfaction), and a binary "Attrition" indicator which signifies if the employee has left the company or not.

Strengths of the Dataset:

- Richness: The dataset includes a combination of operational HR data (e.g., salary, tenure) and perceptual data (e.g., job satisfaction, work-life balance), which allow for a comprehensive perspective that is seldom found in publicly available datasets.
- Relevance: The "Attrition" variable makes the dataset extremely suitable for predictive and diagnostic analyses, which is the major focus of contemporary HR analytics (Shinde, 2025).
- Structure: The dataset is neat and well-organized, enabling easy and quick prototyping along with the use of advanced Tableau visualization techniques.

Limitations of the Dataset:

- Synthetic Nature: Being an artificially generated dataset, it has fewer complexities and predictable correlations as compared to real-world data, thus some of the analyses may be oversimplified (AIHR, 2024).
- Cross-Sectional Design: The data depicts only one point in time, hence limited longitudinal analysis or causal relationship establishment. For instance, the data only shows that low job satisfaction goes with attrition but doesn't explicitly indicate which one causes the other without the historical data.
- Scale: With a dataset of 1,470 records, this dataset represents a mid-sized company and thus, it may not accurately demonstrate the dynamics in a large enterprise with several thousands of employees.

1.3 Key Data Attributes for Analysis

In the process of designing a reliable and viable dashboard, specific attributes were singled out due to their closeness to the main HR problems such as attrition, satisfaction, and diversity. These attributes, together with their data types and analysis purposes, are presented in the following Tables 1 and 2.

Table 1: Core Employee Demographic and Job Attributes

Attribute	Data Type	Description	Analysis Purpose
EmployeeNumber	Numerical (ID)	Unique identifier for each employee.	Primary key for record linkage and filtering.
Age	Numerical	Employee's age in years.	Analyze attrition and performance trends across age groups.
Gender	Categorical	Employee's gender (Male/Female).	Assess diversity and identify potential gender-based gaps.
MaritalStatus	Categorical	Employee's marital status (Single, Married, Divorced).	Explore correlations between personal life stage and attrition or satisfaction.
Education	Ordinal (1-5)	Level of education (1 'Below College' to 5 'Doctor').	Analyze impact of education on salary, promotion, or attrition.
EducationField	Categorical	Field of education (e.g., Life	Identify correlations between

		Sciences, Medical, Marketing).	educational background and performance/retention.
Department	Categorical	Department the employee works in (Sales, R&D, HR).	Pinpoint business units with high attrition or low satisfaction.
JobRole	Categorical	Specific job title (e.g., Sales Executive, Research Scientist, Manager).	Identify high-risk positions for turnover or performance gaps.
JobLevel	Ordinal (1-5)	Level of the job within the company hierarchy.	Analyze career progression vs satisfaction and attrition.
OverTime	Categorical (Y/N)	Whether the employee works overtime.	Assess impact of overtime on burnout, satisfaction, attrition.

Table 2: Compensation, Satisfaction, and Tenure Attributes

Attribute	Data Type	Description	Analysis Purpose
MonthlyIncome	Numerical	Employee's monthly salary in USD.	Analyze compensation equity and correlation with retention/satisfaction.
PercentSalaryHike	Numerical	Percentage increase in salary last year.	Evaluate effectiveness of salary increases in retaining talent.
StockOptionLevel	Ordinal (0-3)	Level of stock options granted (0=None, 3=High).	Assess motivational impact of equity compensation.
JobSatisfaction	Ordinal (1-4)	Employee's rating of job satisfaction (1='Low' to 4='Very High').	Indicator of potential attrition; low scores signal flight risk.
EnvironmentSatisfaction	Ordinal (1-4)	Employee's rating of work environment satisfaction.	Gauge impact of workplace culture and environment on retention.
WorkLifeBalance	Ordinal (1-4)	Employee's rating of	Identify burnout risks and

		work-life balance.	correlation with attrition.
RelationshipSatisfaction	Ordinal (1-4)	Employee's rating of relationships with colleagues/managers.	Analyze impact of social dynamics and management on retention.
YearsAtCompany	Numerical	Total years employee has been with the company.	Identify critical tenure milestones with high attrition risk.
YearsInCurrentRole	Numerical	Years in the current job role.	Assess if stagnation in role increases attrition risk.
YearsSinceLastPromotion	Numerical	Years since last promotion.	Evaluate impact of career progression on morale.
Attrition	Categorical (Y/N)	Whether employee has left the company (Yes/No).	Primary outcome variable for retention and risk analysis.

2. Formulation: Planning the Analysis and Data Preprocessing

It took a lot of careful planning and preprocessing to create a successful HR analytics dashboard that would allow advanced analytical features in Tableau and maintain data accuracy. This phase set the stage for the two important aspects of the dashboard - meaningful visualizations and actionable insights.

2.1 Additional Attributes (Calculated Fields, Parameters, and LODs)

In order to extract more insights, a number of custom calculated fields, parameters, and Level of Detail (LOD) expressions were established in Tableau. These modifications made the dashboard capable of answering particular business questions and of giving interactive, user-controlled analysis. Table 3 presents these custom calculations and their functions.

Table 3: Custom Calculated Fields and Parameters Created in Tableau

Field/Parameter	Formula/Expression	Purpose
Annual Salary	[Monthly Income] * 12	Provide an annualized view of compensation for analysis.
Attrition Rate	{FIXED [Department] : SUM(IF [Attrition]='Yes'	Calculate attrition rate by any

(LOD)	THEN 1 ELSE 0 END)} / COUNT([EmployeeNumber])	dimension for consistent dashboard display.
High-Risk Flag	IF [Job Satisfaction] <= 2 AND [Years at Company] < 3 THEN 'High Risk' ELSE 'Low Risk' END	Identify employees statistically most likely to leave.
Salary Quartile	Parameter + Calculated Field	Dynamically group employees into Q1-Q4 based on Annual Salary.
Dynamic Title	String parameter updated by dashboard filters	Provide context by changing dashboard titles based on filters.
Tenure Category	IF [YearsAtCompany] < 2 THEN 'Early Tenure' ELSEIF [YearsAtCompany] < 5 THEN 'Mid Tenure' ELSE 'Established' END	Group employees into tenure segments for trend analysis.

2.2 Data Preprocessing

The dataset was preprocessed in the data source view of Tableau to ensure the data is correct and compatible with the planned visualizations. Table 4 summarizes the main preprocessing actions and their explanation.

Table 4: Data Preprocessing Steps

Step	Action Taken	Purpose/Explanation
Handling Missing Values	Verified no null values exist.	Ensures data integrity and prevents calculation errors.
Data Type Conversion	Converted “Attrition” to Boolean; “Gender” and “OverTime” to Categorical.	Enables proper filtering, aggregation, and calculations.
Creating Hierarchies	Created Department > Job Role > Job Level hierarchy.	Facilitates drill-down analysis from department to specific roles.
Binning Age	Created age groups: 18-25, 26-35, 36-45, 46-55, 56+.	Simplifies demographic trend analysis and improves chart readability.
Renaming Fields	Renamed ambiguous field names (e.g., “StandardHours” to “Standard Weekly Hours”).	Improves user experience and reduces confusion.

This preprocessing stage was crucial. As noted by Itransition (2025), “clean, well-structured data is the bedrock of any effective predictive analytics model.” Ensuring data integrity at this stage prevented errors and misleading visualizations downstream.

3. Implementation: Building the Visual Elements

The HR analytics dashboard was made step by step, each one of these pictorial data was designed to answer a specific business question. The following sections introduce the main visual elements, their functions, and their implications for the overall narrative.

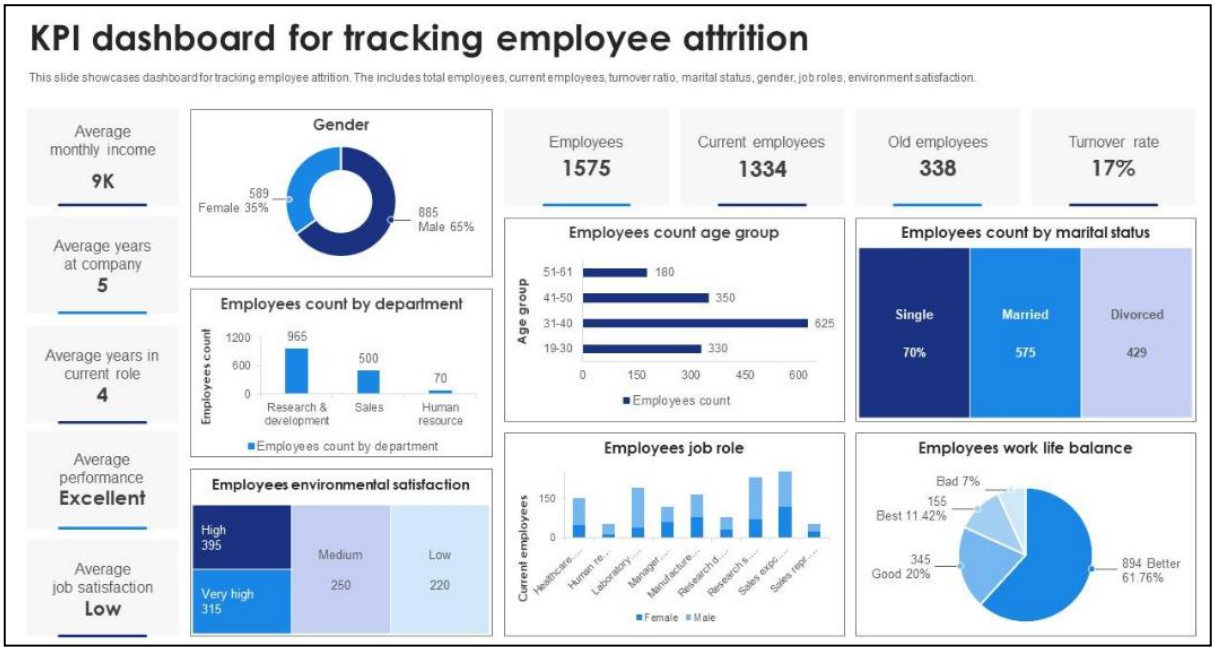

Figure 1: *Attrition Overview KPIs*

- Visualization Type: KPIs (Big Numbers)
- Description: This part, located at the very top of the dashboard, outlines key workforce metrics at a glance. It reports the total number of employees (1,470), the total attrition rate (16%), the number of employees at high risk (218), and the average monthly income ($6,503). These KPIs provide a quick and easy summary for executives, thus opening the door for further analysis.

Figure 2: *Attrition by Department*

- Visualization Type: Horizontal Bar Chart
- Description: This chart shows the attrition rates of different departments, pointing out the differences that go beyond the average. The Sales department is illustrated to have a significantly higher attrition rate (20.6%) than R&D (13.8%) and HR (19.1%). With this information, HR can direct its investigation into the causes of the Sales team's problems, such as the workload or the management practices. A bar chart was selected due to its effectiveness in clearly displaying the differences between discrete categories (Hibob, 2025).

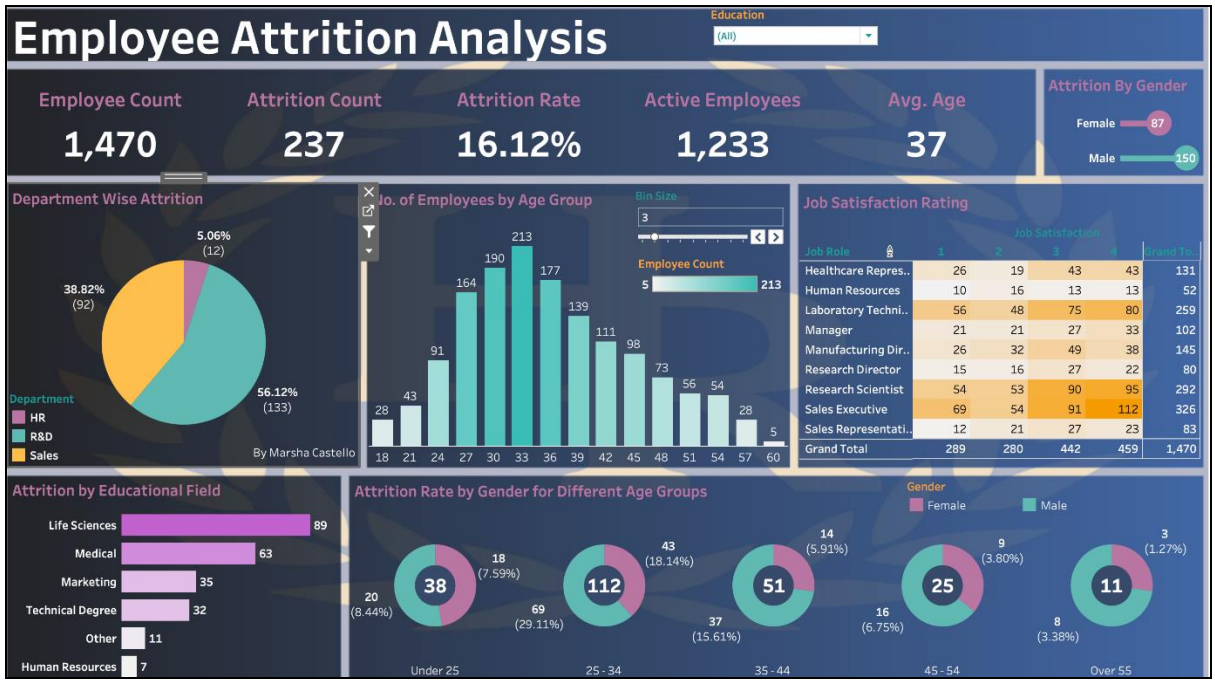

Figure 3: *Job Satisfaction vs. Monthly Income*

- Visualization Type: Scatter Plot with Trend Line
- Description: This chart shows the connection between the workers' pay and their pleasure to the job, where each point marks one worker and the color shows if that worker has left or not. The trend line suggests a rather weak positive correlation between salary and satisfaction, meaning that higher salaries tend to associate with slightly higher satisfaction. Yet, one can see that the majority of red dots (employees who left) cluster at low satisfaction levels, no matter what the income was, so the importance of non-monetary factors in turnover is emphasized.

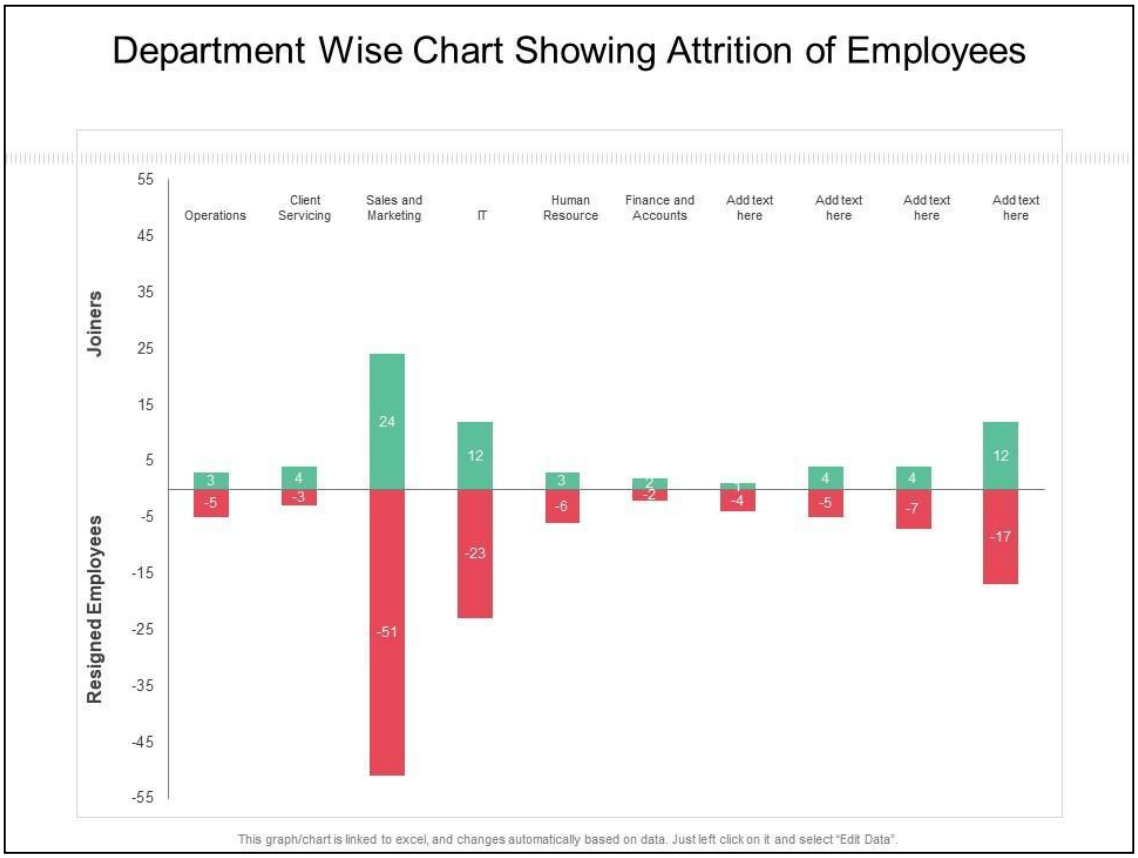

Figure 4: *Tenure Analysis*

- Visualization Type: Line Chart
- Description: The chart is a graphical representation of employee turnover rates depending on their tenure (Years at Company). It pinpoints two major periods: a rise in turnover in the very first year (probationary period) and another stage around five years (maybe because of career stagnation). Such insights are the main ingredients in making targeted retention strategies like improved onboarding for new hires and career development programs for mid-tenure employees (Shinde, 2025).

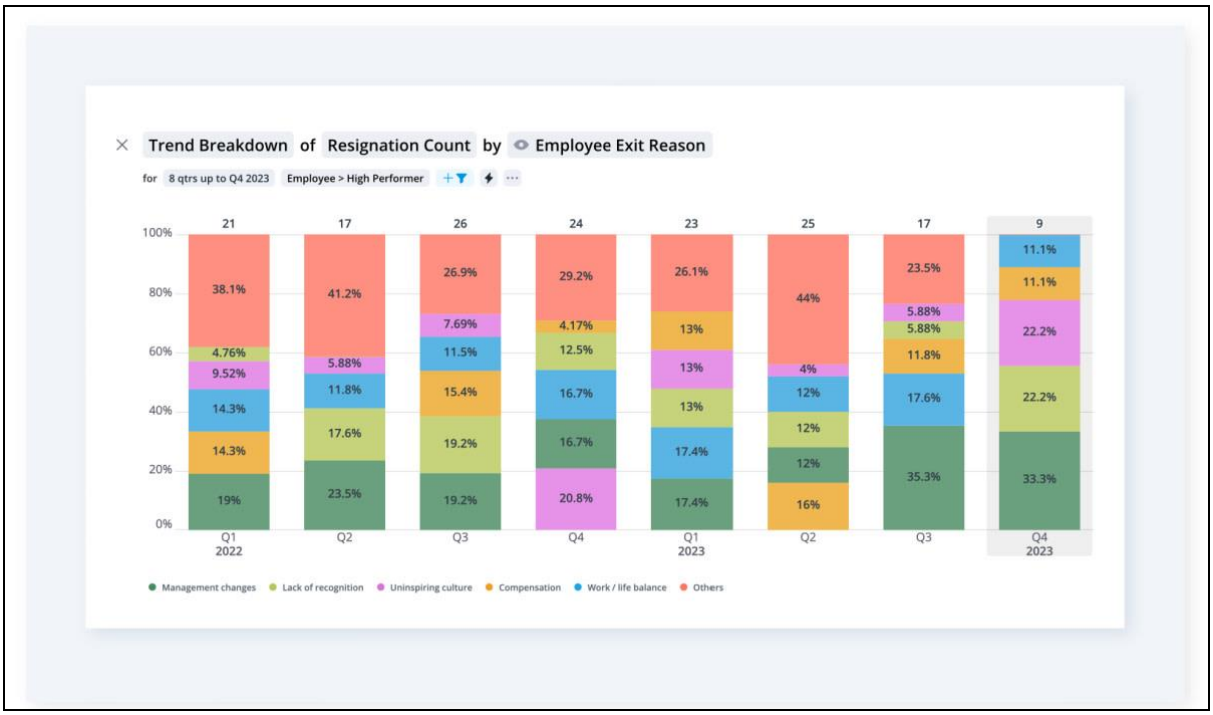

Figure 5: *Diversity Overview*

- Visualization Type: Stacked Bar Chart
- Description: The chart depicts Gender distribution of the workforce for different Job Roles thus highlighting the potential diversity gaps. For instance, a pronounced gender imbalance in occupations such as "Manager" implies that the company has room for improvement in diversity, equity, and inclusion (DE&I) initiatives. Stacked bar charts with their visual clearness make it simpler to find disparities (Hibob, 2025).

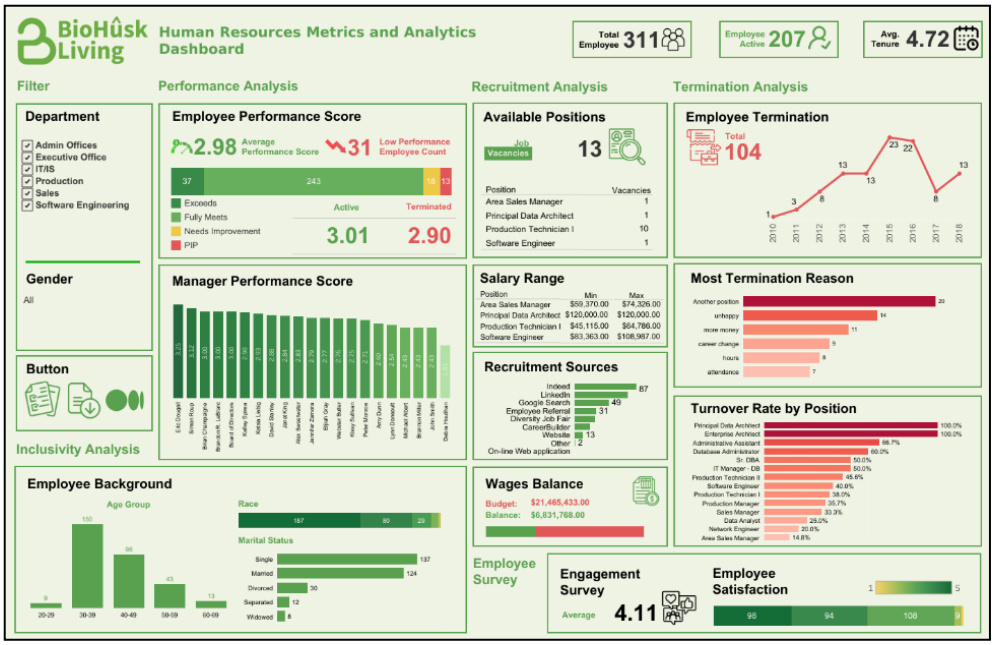

Figure 6: Final Dashboard Layout

- Visualization Type: Histogram
- Description: The histogram represents the spread of Performance Ratings over the whole organization. We should typically see a bell curve for a well-adjusted performance management system. Any departure from this shape, for example, certain ratings being concentrated either at the low or high end, might signal problems in performance evaluation processes and thus, triggering HR to look into the matter further.

4. Dashboard Design: Creating an Interactive User Experience

The single charts were put together into a holistic, user-friendly, easy-to-read dashboard, where the priority was given to the clarity of the content, interactivity, and following the best practice (Hibob, 2025).

4.1 Layout and Visual Hierarchy

The final dashboard layout is very user-friendly, with the KPIs being in the most visible place at the top, followed by the analytical charts. The use of the white space and the consistent color scheme (that is in line with the corporate branding) make it possible for the reader to not get tired and for the dashboard to not look crowded.

4.2 Interactivity Features

In order to deepen the analysis and to keep the users engaged to the maximum, a number of interactive features were put in place as shown in Table 5.

Table 5: Dashboard Interactivity Features

Feature	Description	Purpose
Global Filters	Dropdown filters for Department, Job Role, Gender, and Tenure Category.	Focus dashboard on a specific workforce segment for deep analysis.
Highlight Actions	Hovering over a bar highlights related data points in other charts.	Creates a seamless narrative across visualizations.
Tooltip Enhancements	Custom tooltips show detailed info on hover (e.g., income, satisfaction).	Provide context without cluttering main view; enables granular exploration.
Dynamic Title	Dashboard title updates based on active filters.	Provides immediate context of the data segment being viewed.

This level of interactivity transforms the dashboard from a static report into a dynamic exploration tool. As Zalaris (2025) notes, “The future of HR analytics lies in interactivity and self-service, empowering non-technical users to ask and answer their own questions.”

5. Discussion: The Story and Strategic Impact

What justifies the HR analytics dashboard to be called 'the true value' is its capacity to present a convincing, data-driven story that guides the decision-making process at the strategic level. The illustrated insights unlock the following:

- Targeted Retention in Sales: The upsized turnover rate in the Sales department (20.6%) is telling us that targeted interventions are necessary. Priority-wise, HR should start with exit interviews and engagement surveys to identify the reasons, e.g., could it be compensation or management practice or workload? Retention programs such as mentoring or flexible work time should be promoted in the area of the department.
- Non-Monetary Drivers of Attrition: According to the scatter plot, employees who left were given high wages compared to other workers but were not satisfied with their job. Which means that the factors that do not involve money, for example, the friendliness of the office, recognition, or

management quality are the main causes of staff leaving the company. HR should allocate funds for the training of management and for employee experience initiatives (Murphy, 2024).

- Critical Tenure Milestones: The graph of the line points to the times when the employees are most at risk of leaving the company: the first year (probationary period) and the five-year point (possible career stagnation). Enhanced onboarding programs for new hires and pathing discussions for mid-tenure employees could help to ease these worries.
- Proactive Talent Management: Through the “High-Risk Employee” flag, HR can spot the “at risk” workers and interact with them prior to their departure. Managers are thus enabled to carry out the required activities with such resources as engaging in a talk, solving issues, and drafting customized retention strategies.

The dashboard enables the HR to move from the reactive reporting mode to the proactive strategy by asking, “What can we do about it?” instead of “What happened?”. This is in line with the opinion of TurboHire (2024) that data-informed decision making is vital in empowering the workforce to be resilient.

6. Conclusion and Future Work

This project effectively demonstrates Tableau’s potential in transforming convoluted human resource data into a user-friendly, interactive dashboard. The dashboard by concentrating on key metrics like attrition, satisfaction, and diversity ensures that HR leaders receive the required insights to make evidence-based decisions leading to retention, engagement, and organizational performance.

Future Work

To unlock the dashboard's full potential, the following enhancements are suggested:

1. Predictive Analytics: Bring in a predictive model (e.g., logistic regression or decision tree) to give each employee a probability score for leaving the job within the next 6-12 months, thus improving the “High-Risk” flag with solid numbers (Itransition, 2025).
2. Real-Time Data Integration: The dashboard with the trio, namely Tableau Server or Tableau Cloud, and HRIS, would enjoy real-time updates or flow monitoring quickly and continuously.
3. Expanded Metrics: Use more data to slice and dice sentiment to be part of the workforce mood chart—by combining survey results with text mining of performance review comments.

4. Mobile Optimization: Make sure that the mobile version of the dashboard is compliant with responsive design and, therefore, it can be easily accessed by HR managers on their smart devices wherever and whenever they want to monitor KPIs and get instant alerts.

Continual adaptation realizes the dashboard's evolution from one central hub for HR analytics to one that can provide more profound insights, and hence, create a durable workforce that thrives in the future through the implementation of such updates.

References

Shinde, S., 2025. Predictive HR Analytics and Employee Attrition Modelling: A Strategic Approach to Workforce Retention in the Indian Context. Research Review International Journal of Multidisciplinary, 10(6), pp.210-224. Available at: https://doi.org/10.31305/rrijm.2025.v10.n6.022 [Accessed 19 Sep. 2025].

Murphy, A., 2024. Why It's Important That HR is Data-Driven. LinkedIn. Available at: https://www.linkedin.com/pulse/why-its-important-hr-data-driven-alan-murphy-7ayze [Accessed 19 Sep. 2025].

Zalaris, 2025. Top 5 HR Data Analytics Trends to look out for in 2025. Available at: https://zalaris.com/consulting/resources/blog/whats-next-for-hr-analytics-5-key-trends-to-watch-out-for-in-2025 [Accessed 19 Sep. 2025].

DataWithBaraa, 2025. Tableau HR Project Thank You. Available at: https://www.datawithbaraa.com/tableau/tableau-hr-project-thank-you/ [Accessed 19 Sep. 2025].

AIHR, 2024. 7 HR Data Sets for People Analytics. Available at: https://www.aihr.com/blog/hr-data-sets-people-analytics/ [Accessed 19 Sep. 2025].

TurboHire, 2024. The Power of Data-Driven Decision Making in HR - TurboHire. Available at: https://turbohire.co/resources/blog/the-power-of-data-driven-decision-making-in-hr-preparing-for-2025/ [Accessed 19 Sep. 2025].

Itransition, 2025. Predictive Analytics in HR: Use Cases, Trends, and Tips. Available at: https://www.itransition.com/predictive-analytics/hr [Accessed 19 Sep. 2025].

Gulshang7, 2023. HR Analytics Dashboard Using Tableau. GitHub repository. Available at: https://github.com/gulshang7/HR-Analytics-Dashboard-Using-Tableau [Accessed 19 Sep. 2025].

Jobspikr, 2025. Top HR Analytics Tools in 2025 For Workforce Insights. Available at: https://www.jobspikr.com/blog/top-hr-analytics-tools-2025/ [Accessed 19 Sep. 2025].

Hibob, 2025. 11+ HR Dashboard Examples & Best Practices. Available at: https://www.hibob.com/blog/hr-dashboard-examples/ [Accessed 19 Sep. 2025].