People Analytics

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1. Introduction

People Analytics can be traced back over hundreds of years ago. This concept was introduced by Frederick Taylor in his book 'The Principles of Scientific Management' in 1911. In this book the author attempted to drive efficiency, enhance productivity by measuring tasks that the employees did.

Human resources (HR) professionals are facing more challenges than at any other time in history. We all know the year 2020 and 2021 as the "Big Quit" year or the "Mass Resignation Year", On one side, top tech companies were laying off their employees while on the other side people themselves were resigning due to mental health issues, longer working hours etc. Key issues that HR professionals have witnessed are global health crisis, layoffs, great resignation, social unrest and an economic downturn. Unfortunately, it appears that this disruptive period of workplace change will continue for the foreseeable future.

People analytics (also known as HR analytics) is the collection and application of talent data to improve critical talent and business outcomes. It helps in improving workforce processes and promote positive employee experience.

Being able to use data in decision-making has been growing in importance throughout the global pandemic. Moving towards a post-pandemic world, there are many changes happening in employment – whether it is the growing popularity of hybrid work or the increased use of automation. It is vital to make the correct decisions in order to navigate our new realities. We are trying to solve this, by using data analytics and business intelligence.

The goal is to understand the data, and build visuals to effectively communicate them, creating a pathway to data-driven decision making.

2. Related Work

Some of the previous research and work in the field of people analytics have focused on challenges and opportunities faced by business firms in implementing human resource analytics as a tool in organizations.

Few other research concentrates on human resource analytics, and it illustrates how it has been successfully implemented by google to enable better decision making. Some of the studies also focus on the practices of people analytics to identify gaps, priorities, and recommendations for ethical practice.

While most of the studies majorly revolve around human resource tools, challenges, and opportunities, there are some studies which have targeted the elephant in the room, mass resignation, which was bolstered and accelerated by the covid pandemic.

These studies focus primarily on addressing the concern of resignations and what can be done to avoid it. It also presses heavily on the importance of how to tackle employee retention and dissatisfaction.

3. Methodology

The methodology to create the People Analytics dashboard includes Data Collection, Cleaning and Pre-Processing of data. HR dataset from Real World Fake data has been used for this project. The data is openly available for download in .csv format and includes **22,438 Employee records with 13 attributes**. The attributes include information like Name, D.O.B, Gender, Department, Job Title, Location, Race, Hire Date and Termination Date.

As a part of data cleaning, we **removed 224 NULL valued records**. There were a few **inconsistent** Employee records with a future termination date (could be contract workers or data anomalies). Since the reason behind this was unknown, those termination dates were not considered for analysis. **Outlier analysis** was performed on all attributes, from which we found no significant outliers to be present.

As a part of pre-processing, the **data types and default properties** of the dimensions and measures were set in Tableau. A **hierarchy** with Employee State and City was created. The following **derived attributes** were created:

1. Age - Age of the Employee, calculated from Birthdate

2. Tenure – Number of years associated with the company, calculated from Hire and Termination date

3. Gender Diversity % - Percentage of Females in the company

4. Age of Exit - Age of the Employee as on Termination date for exited employees

5. Employee Status - Active Employees still work for the company, Inactive ones have quit

6. Race Diversity % - Percentage of People of Color in the company

Apart from the derived attributes, Age **Bins** were created to group Employees aged 20-30, 30-40, 40-50 and >50 together. A Gender **group** with Females and Non-confirming Employees grouped together as Females was created. A Race Group that bundles Alaska Natives, Asians, African Americans, Hispanic or Latinos, Native Hawaiian or Other Pacific Islander and employees with Two or more races as People of Color was also created.

A Diversity **parameter** that allows users to choose between Gender and Race Diversity was created. Either Gender or Race Diversity numbers will be displayed in the Diversity dashboard based on the parameter chosen. An employee name parameter is created to display the corresponding employee information in the Employee dashboard based on the employee selected from the Employee Details sheet.

4. Key Takeaways

The key takeaways from the dashboard and insights are as below:

1. The overall race diversity of the company is good, there are few roles such as VP of Sales, Assistant Manager, Attorney, etc., in which People of Color come out as minority groups

2. The company has balanced gender diversity with an overall and department-wise Gender diversity percentage is greater than 45%

3. In 2021, the number of terminations reached a new peak, with even more experienced employees leaving the company. This is expected as in 2021 the attrition was at its peak which is also known as the great resignation year of the USA

4. Employees aged 24-26 are most prone to exit within 4 years of joining the company this is probably because less experienced employees switch jobs as they tend to take high risks, look out for better pay, and alignment between personal values and organizational priorities

5. Future Work

1. Project at present is based on limited real world fake data, it would be interesting to extend analytics on real world business dataset

2. Insights into the diversity of employees in a company can further be analyzed if we could gather data related to their demographics and cultures

3. Reasons for attrition trends can be identified if data pertaining to performance rating, appreciations, skill set, pay scale and working hours of employees are known

4. Terminations by department can be better represented in the form of ratio/percentages instead of number of employees

5. A challenge for every organization which happens often unconsciously. This can be solved by implementing AI and data solutions to eliminate the bias

6. Employees' personal lives and work are not mutually exclusive. Intersection and overlap exist which can impact either way. Targeted skills development, creating unique experience for the employees will lead to retention

7. Organizations that can identify the specific skills they need—not just the requirements required to fill will have a leg up in the war for talent

6. Key Learnings

1. Advance tableau techniques to apply row level security upon data visible to specific users in a dashboard fetched in dashboard based on filters

2. Advanced action filters were in images are stored in tableau repository and then

3. Fixed calculation charts were used in Overview dashboard to show headcount, termination etc.

4. Dynamic dashboards using sheets as filters

5. Show/hide buttons for filters in dashboard used in diversity dashboard based on selection criteria was new to learn

References

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