The Drivers and Barriers of Adoption of People Analytics: A Review and Empirical Investigation

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Abstract

The contemporary dynamic business climate puts immense pressure on the HR department to find strategies that promote company performance. People analytics may be a significant tool for Human resource professionals and industry leaders in a continuously changing business world. In order to make better decisions and boost productivity, People Analytics seeks and reveals insights into data about the workforce, then shares these findings with the relevant stakeholders. Despite the potential benefits of people analytics, some organizations may not be adopting it. There are several reasons why some organizations may not be adopting people analytics. The objectives of this research are twofold. First, attempt to identify and discusses the drivers and barriers to the adoption of people analytics by human resources departments. Second, we surveyed 390 Human resource professionals and used a feedforward neural network to classify the adopters and no-adopters. The findings of this study show that talent acquisition, employee retention, and employee productivity are the main drivers of adoption. The data availability and data quality, lack of skills to perform people analytics, and associated costs are the main barriers to people analytics adoption.

Introduction

There has been a profound shift in the way business function and make choices as a direct result of the availability and accessibility of data. Data enables companies to gather and examine the information from a wide range of sources, providing useful insights and informing decision-making. Businesses may make better-educated choices about how to spend resources, create new goods and services, and adapt to changing market circumstances by studying data on issues like consumer behavior, market dynamics, and operational efficiency. Data may assist firms in identifying operational inefficiencies and opportunities for change, resulting in enhanced performance and cost savings. Data analysis on supply chain operations, for example, may assist firms in optimizing their processes and reducing waste.

Fortunately, firms may increasingly utilize data to make human resource choices as well. Because of the popularity of human resource information technologies, as well as the widespread availability of current data gathering, analysis, and presentation

technologies, human resource-related choices, like many other business decisions, may be taken using data.

Prior to the 1990s, the human resource was largely concerned with administrative tasks [1]. Associates in this field were primarily based on previous experience and practical understanding of people management. Their responsibilities were more reactive, dealing with difficulties as they emerged, such as filling job openings, orienting new workers, recording disciplinary measures due to poor performance, or completing papers for an employee departing. Traditionally, HR would aggregate and keep personnel data for internal purposes solely, and would not give the data to other departments. The raw data was only maintained for their own obligations, such as people demographics, to check how many people were in the workforce by sexual identity or year of service, and was only kept for the linked job function and for research. If necessary, HR may obtain the data at that time depending on the requirements.

However, as time passed, the realization that HR might be proactive grew. The discovery that human behaviors might be studied and assessed in order to develop best practices heightened interest in integrating data into corporate decisions. As a result, people analytics, which was first reluctant to gain traction, is now experiencing increased attention in the rapidly changing work environment. HR professionals are now transitioning from an administrative to a strategic position, working with the company and leveraging people data to achieve business objectives. This is one of the main reasons that HR emphasizes this by displaying the current as well as the future situation that we have perceived from them, addressing problems and concerns, including an action plan to narrow the shortfalls, and eventually incorporating them into the management team's people agenda and business model.

The collection and utilization of people data to enhance essential workforce and business objectives are known as people analytics. HR executives may use people analytics to produce data-driven insights to influence personnel choices, optimize workforce procedures, and promote a great employee experience. People analytics may be traced back more than a century to Frederick Taylor's idea [2], [3]. Taylor's ideas aimed to optimize activities, increase efficiency, and boost production by tracking everything people performed [4]. According to this idea, people analytics may be used by both small and large enterprises to optimize their workforce and boost employee engagement. Companies seeking a higher return on their human capital investments would gain greatly from people.

Using People analytics assists firms in determining what is required of a new recruit based on prior applications, corporate requirements, and success. People analytics assists businesses in understanding new recruits based on past data. This assists them in determining whether or not they are a suitable match for the organization. Organizations seek the finest prospects from a limited pool of applicants. The best method to tackle this problem is to use people analytics planning. It aids in determining the business's future growth, structure, and personnel needs. Recruiters may use analytics to establish a pipeline of quality prospects, supporting firms in

maintaining competitiveness. Finding skilled personnel is always difficult, regardless of a company's size or scope.

The world is extensively computerized, and customers get individualized and personalized experiences from the companies with which they engage. Employees anticipate a similar experience at work. This includes services that are tailored to increase workforce engagement and the ability to provide and receive direct feedback. People analytics is critical to optimize human resources and offering excellent employee and customer experience.

Diversity, equality, and inclusion may be very beneficial to companies. Analytics can help organizations realize how to adequately address problem areas by responding to issues about the state of inclusivity throughout a company and across its employee experience, determining the areas where intentional or accidental bias may be occurring, and recognizing areas in which intentional or accidental bias may be occurring. People analytics provides firms with more insight into their diversity efforts.

People analytics may be used by businesses to improve training modalities and sources. Learning analytics that links the effect of training and development on organizational outcomes allows businesses to ask the appropriate questions and get the correct answers. People analytics may also assist firms in increasing productivity. Companies may drive growth and save money by linking actual time spent on operations to an ideal goal time and monitoring against this index. In the absence of people analytics, it is common practice to build teams by pairing experts in related fields with those who possess complementary but different sets of talents. However, analytics often indicates that this does not result in the greatest worker interaction, the most creative idea generation, or the most effective project execution. Many more factors influence team cohesion and success.

One of the primary reasons why businesses have yet to implement People analytics is that they are still grappling with the fundamentals of human resources.

Many firms just do not know how to apply People analytics and have no clue where to begin. They may be better acquainted with accounting and finance but perhaps not with HR activities like pay management or performance evaluations. As a result, even if firms have some data in their systems, there are still significant gaps in how they see their own data from a computational standpoint.

Drivers and barriers to adopting People Analytics

Drivers

Talent acquisition is one of the main drivers of People Analytics. Organizations are finding it harder and more difficult to attract and hire top people in today's complicated and demanding talent acquisition landscape [5], [6]. The process of locating, obtaining, analyzing, testing, and recruiting the appropriate applicants for the right position at the right time is talent acquisition. Organizations aim to fill vacancies while taking into account their objectives, values, culture, and strategic objectives that the firm wishes to achieve.

Recruiters, whether consciously or unintentionally, make extremely frequent mistakes while making selection decisions, such as the Halo fallacy, the central tendency error, and the initial impression error. These mistakes emerge as a result of a prior understanding of circumstances and cultures. Using facts and data may assist in removing prejudice.

Data-driven techniques may provide vital insights for enhancing both business and operational results. Analytics is a strong force in the effort to seek and acquire top people, whether it's improved knowledge of candidate fit, technology, and workflow optimization, or a better understanding of the effect of talent acquisition on the company [7]. People analytics identifies statistical links between different actions and results in order to either predict what will take place in the future or explain the determinants of that consequence, such as a candidate's potential cultural fit, overall performance, and retention.

It also identifies possible talent shortages/skills gaps as well as accessibility (workforce planning). Predictive approaches may also predict potential changes to hiring tactics as well as the possibility of using automation and/or flexible labor solutions. These methods make use of sophisticated statistical and modeling approaches in conjunction with massive, integrated datasets.

As employee retention remains a big concern for businesses, some HR directors investigate all possible measures to reduce their business's turnover rate. People analytics may be able to assist enhance such figures [8].

HR directors may utilize people analytics to increase diversity, equality, and inclusiveness and discover departments with higher-than-average departure rates [9]. These tactics may also improve staff retention. Predictive analytics, which combines current and past data to project future patterns, is among the most potentially beneficial capabilities of analytics software. Predictive analytics has the ability to give insight into future turnovers and areas of concern.

While predictive analytics cannot guarantee future patterns, it may give HR directors insights that can be used to reduce potential turnover difficulties.

Employee retention is also one of the main drivers of People Analytics adoption. Employees may choose to quit a firm due to poor employee engagement, and people analytics might possibly assist HR management in determining how to enhance their organization's human resources experience. HR staff may compile different opinion and sentiment data to create employee attitude metrics that dive into workers' views about a variety of subjects, such as their team, corporate processes, and company regulations. HR executives may then devise initiatives to enhance the employee experience.

Work engagement is now more crucial than ever, and Human resource departments are embracing People Analytics to help them make better choices. Employee engagement refers to the interaction between a company and its workers. It demonstrates the amount to which people are enthusiastic about the work, put in extra effort, and remain devoted to the organization's goals. Highly engaged

employees are more likely to feel linked to the organization's vision and objective, to retain more employees, and to go above and beyond their job duties.

Engagement data may be used by management to monitor and track teams with greater-than-average engagement levels or a larger proportion of engaged personnel. Additional funding, capability, and incentives might be supplied to assist them in becoming more effective and inclined to retain. This is particularly true for top achievers. Using sophisticated People Analytics removes the guesswork from evaluating employee engagement; it aids in the creation of an ideal employee experience, which reduces attrition and absenteeism while increasing productivity [5], [10]. Companies may utilize analytics to forecast the incumbent's future performance. This benefits the business in succession and career management since organizations can simply use the real data/qualities with the necessary parameters linked with the job function to which the individual may be promoted.

Barriers

When using People analytics, firms may confront a number of data quality concerns [8], [11], [12]. The first concern is the availability of data. Human resource data may be challenging to collect or not stored in a single place. This might make it challenging to efficiently examine and utilize the data. Another hurdle is the accuracy of the data. HR data is not always correct or full. Employee records, for example, may be out of date or erroneous, or data may have been recorded wrongly. As a result, inaccurate inferences might be taken from the data. Furthermore, HR data may be housed in numerous systems or formats, making integration and analysis problematic. Data that is inconsistent might lead to inaccurate or misleading conclusions. Human resource data often includes sensitive private details, such as employee identities, residences, and compensation information. Organizations must guarantee that this information is secure and that only certified people have access to it. Employees may be worried about how their information is being utilized and who has direct exposure to it if People analytics is employed. Organizations must be open about their data collecting and usage policies, as well as ensure compliance with applicable laws and regulations.

Many organizations struggle to use People analytics because they lack the necessary skills. A broad range of skills is essential for HR employees who specialize in analytics. Data analytic capabilities, technical knowledge, and effective communication are examples of these. People analytics experts must be skilled in the use of tools and software to gather, analyze, and interpret information. This may need knowledge in descriptive statistics, visualization of data, and data analysis. In order to operate People analytics toolsets, HR professionals also are required to have excellent technical abilities [13], [14]. This may involve knowledge of programming languages, database administration, and other technical abilities. People analytics specialists must be able to present complicated data and insights to a diverse range of audiences, including HR personnel, executives, and workers, in a clear and straightforward way.

Technical skills are sometimes lacking among HR leaders since they are not frequently emphasized in standard HR training and education programs. However,

because of the increased dependence on emerging technologies and data in HR, technical skills are more crucial than ever.

HR leaders may miss technical skills for a variety of reasons. One possible explanation is that they were unable to obtain the required instruction or training in such areas. Another factor might be that they weren't given the chance to get expertise in their HR responsibilities utilizing technology tools and software.

There may be a lot of financial impediments to implementing People analytics. Paying for specialized HR analysis tools or solutions might be costly upfront and may include further subscription or maintenance costs. Training HR workers to utilize the tools or technology may also be expensive, particularly if it necessitates the hiring of outside specialists or the training of a significant number of staff members. Data collection and preparation for analysis may be a time-consuming process that may need the hiring of temporary employees or consultants. The continued support and administration of HR advanced software may significantly increase the total cost. Moreover, integrating HR advanced analytics or software with some other HR procedures or systems may need further development or customization, increasing the cost.

HR cost reduction is critical for a variety of reasons. In business, the objective is often to increase profits while minimizing expenditures, and human resources may be a considerable cost for many firms. Organizations might possibly boost their efficiency and profitability by reducing HR expenditures.

Aside from financial reasons, lowering HR expenditures may help firms manage resources more quickly and effectively. This allows firms to allocate resources to areas of the company that may be in more need or has the possibility for a better return on investment. Furthermore, reducing HR expenditures may assist firms in maintaining a lean, efficient, and flexible staff, which is especially crucial in a continuously shifting business environment. Organizations may be better positioned to react to challenges and opportunities by simplifying HR operations and reducing wasteful expenditures.

Methods

The empirical part of this research used a feedforward neural network. Neural networks are a specific type of machine learning algorithm that is influenced by the brain's functioning and structure. They are made up of multiple layers of linked "neurons" that process and transfer data. Neural networks excel at tasks that necessitate model learning and adapting based on examples rather than being models for predicting a single task. One of the most important characteristics of neural networks is their capacity to extract information from huge amounts of information. Based on examples fed into the network, they can learn to identify patterns, categorize data, and make inferences. They are frequently used for various computer vision tasks, natural language processing, and general classification tasks Neural networks are classified into three types: feedforward neural networks, CNNs, and RNAs [15]–[19]. Each type is best suited for specific tasks and possesses its own set of features and functionality. Generally, neural networks are an

effective technique for solving a wide range of machine learning and deep learning problems.

"Integration of People Analytics" is the label with 3 classes. It is equal to 0 if an organization has and are not intended to adopt people analytics in the next year. It is equal to 1 if it is undecided to adopt, and equal to 2 if it has already been adopted.

Results and discussion

Figure 1. plots the correlation heatmap of the features and the label. It can be seen that the strongest association among the drivers is between talent acquisition and adoption. Among the barriers, on the other hand, the strongest correlation is between cost and adoption.

According to Figure 2, the test accuracy is 0.897 and the test loss is 0.305. This means that the model predicts fairly accurately on the test dataset, with an accuracy of 89.7%. Nevertheless, the test loss is comparatively high, indicating that the model's predictive performance can be improved with a larger sample size.

Figure 1. Correlation among the variables
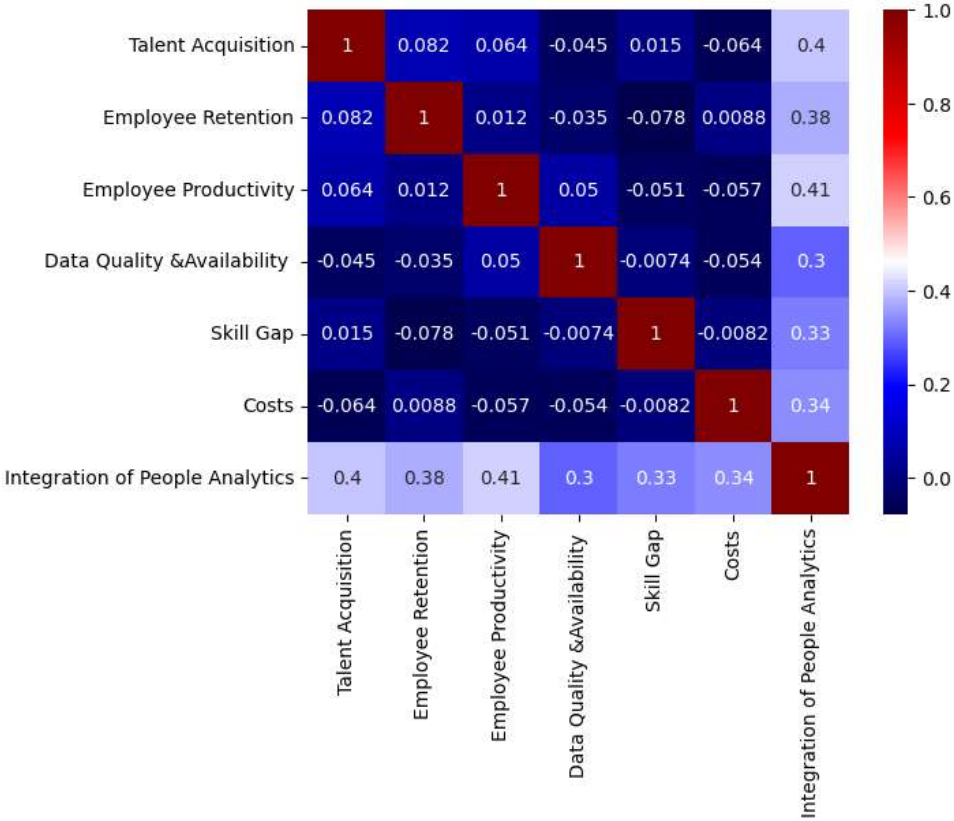
Leading organizations no longer depend only on applicant tracking systems to report on transactional data. The scope widens with the use of more complex technologies, database systems, and analytic tools, allowing for more comprehensive insights.

People analytics may assist firms to decrease turnover by revealing where the processes are working, where they're not, and what is at risk. Rather than designing all-encompassing retention strategies, HR departments should narrow their emphasis and direct resources where they will have the most effect. This necessitates organizations be significantly more sophisticated in identifying the fundamental reasons for turnover, as well as adopting more analytical methodologies that improve their capacity to detect attrition risk indicators and provide data to key stakeholders to drive action.

Predictive analytics has the potential to significantly improve employee satisfaction and retention. Utilizing the information that companies already possess to their advantage might help gain control of the firm. Factual data may be studied to discover patterns when emotions are removed from the equation. Use the insights provided to increase engagement, retention, and, ultimately, business.

The amount of involvement of an organization's staff has a significant impact on its success and retention. That is why it is vital for HR directors to implement a strong data-driven process to assist firms in identifying, engaging, and encouraging outstanding performers.

Figure 2. The performance of the feedforward neural network model

Test loss: 0.305 Test Accuracy: 0.897
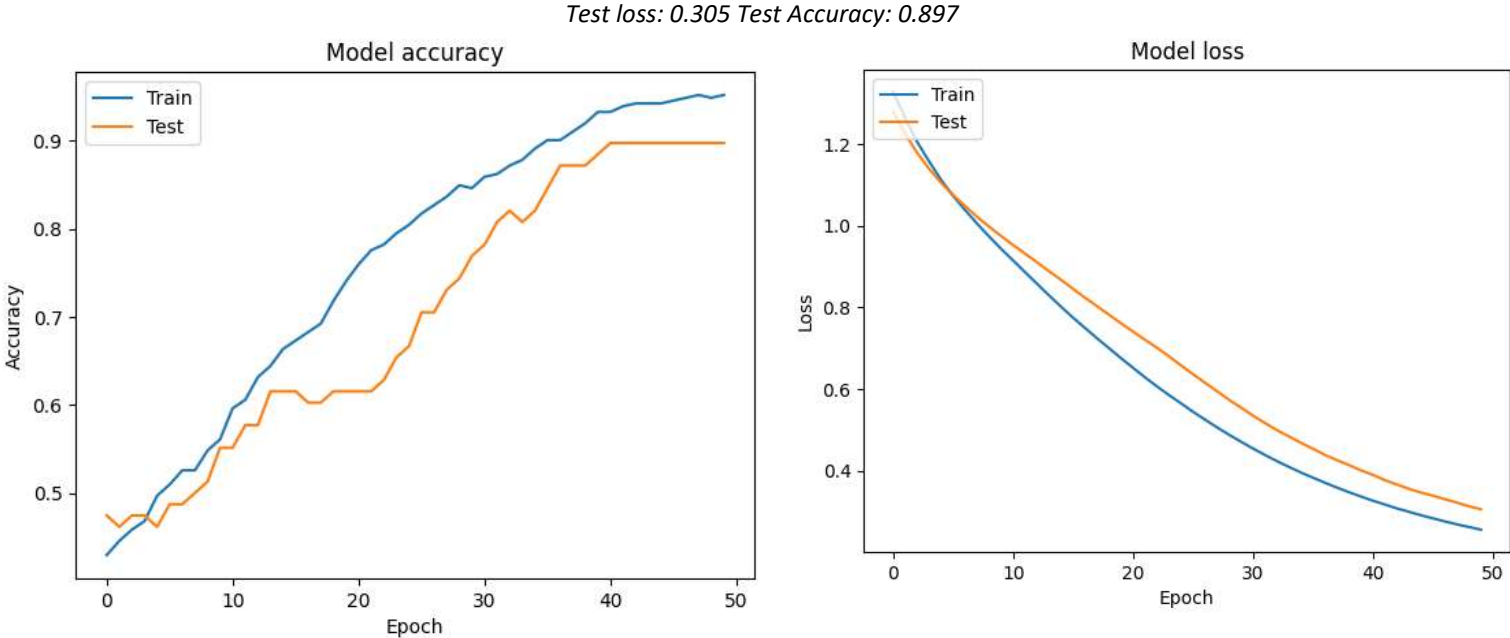
There is presently no internationally recognized, organized strategy for controlling and sustaining organizational workforce data quality. Furthermore, worker data is often disorganized, and there is confusion around ownership/responsibility for this data, which is separated and compartmentalized across most firms. Human Resources is usually in charge of part of the key information but certainly not all of it.

Investing in professional development and training education programs for HR professionals is something that companies may do to help make up for the shortage of

technical skills in modern human resources. This might involve providing classes or seminars on subjects such as database administration, data analysis, and programming. Additionally, firms should consider employing HR experts with strong technical abilities or allowing HR staff to obtain hands-on experience with technological tools and applications.

Overall, HR professionals must have a certain degree of technical expertise in order to properly utilize People analytics tools, as well as be capable of dealing with massive amounts of data and making more informed decisions dependent on the data's insights.

The use of People analytics may be costly due to the need for software applications or tools to gather and analyze data, which can be costly. There may also be expenses involved with training HR personnel to utilize the tools and with continuing maintenance and assistance.

The potential advantages of employing People analytics, on the other hand, may exceed the expenses. People analytics may assist firms in making more informed personnel choices, which can result in greater productivity and efficiency better engagement, and overall performance. It may also assist firms in identifying and addressing issues or problems that are influencing employee morale or performance.

There are various methods to reduce the cost of using People analytics. Organizations, for example, might begin small by concentrating on a few important HR indicators or areas of focus rather than attempting to examine all Information and data at once. Organizations might also explore employing open-source or free technologies for data collecting and analysis, as well as using the HR advanced analytics of current HR systems or software.

Conclusion

People analytics is growing in significance as businesses look to leverage information and insights to guide HR strategy and decision-making. Traditionally, HR data was exclusively gathered via questionnaires. The difficulty is that questionnaires, pools, and surveys are just temporal moments and do not always represent the complete situation. Furthermore, numerous things might influence survey findings and their worth, such as the clarity of the questionnaires, the respondents' mood, and events that occurred the day before the survey.

The human resource department now plays a larger role in the identification of organizational problems and the development of concrete recommendations for fixing such problems in the interest of long-term economic viability. A people analytics team's major goal is to give the organization insights that enable them to make better corporate choices, hence boosting corporate performance while also improving employee engagement and well-being. People analytics, in essence, emphasizes employees and the influence they have; it gives an outside-in perspective of the contribution that HR brings to the organization.

People analytics information may help a business develop on all levels. Employees are at the core of any business. People analytics is a great approach to identifying the appropriate personnel, making better use of staff, and enhancing a company's overall performance.

People analytics begin with the procurement of talent. Finding the ideal individual can not occur immediately, nor can it occur if the business does not know precisely what it requires. Organizations can use people analytics to better define headcount goals, detect and fill

talent shortages, and assure retention, bringing them one step closer to finding the ideal candidate and retaining them for a long period of time. There are difficulties at the same time. Data is the foundation of HR's continual digital transformation. However, incorrect data may contaminate systems and result in unproductive decision-making.

The time and effort required to collect and organize relevant data present a potential financial barrier to People analytics. Human resources data collection and management can be a time- and labor-intensive process, depending on the nature and scale of the company. Organizations should weigh the costs and benefits of people analytics and put their focus on where it will have the most impact. People analytics enables Human resource professionals to make better choices, streamline procedures, and achieve business outcomes. People analytics' application is expected to grow in HR as businesses place a higher emphasis on making decisions based on empirical evidence.

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