People Analytics and Disruptive Technologies are Transforming Human Resources Roles

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Recommended Citation

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Abstract

Human Resources Information Systems that collect, store, and analyze people data are beginning to view the role of people analytics and other related technologies favorably as they provide new, timely and objective insights which aid in bringing about a transformational change in the roles of HR. People analytics is thus an excellent platform for HR to achieve its long awaited 'Strategic Partner' role. Organizations of all sizes and types are adopting and adapting to people analytics. Several well-known companies have recently demonstrated the benefits of using people analytics for HR functions. However, people analytics is not without roadblocks of unethical or illegal use of people data. Additionally, shortages of qualified staff able to adapt to the increasingly technology driven workplace will slow down HR's transformation. This paper studies the role of people analytics in transforming HR. It examines some real-life organizational examples in people analytics, and challenges for its widespread adoption. It also discusses the future of this burgeoning trend in HR, as well as potential applications of the other disruptive technologies.

Introduction

Human Resources (HR) in contemporary organizations is changing rapidly due to newer technologies disrupting the old ways of traditional HR. Early in the 1980s, as computers were introduced to the world, HR services used the new tools to create databases. Subsequent further uptake in the use of computers for processing data and usage of custom-built HR software for analyses have increased in sophistication over time to such an extent that today we have augmented intelligence tools to mine data and provide insights. Such disruptive technologies and increasing cloud storage capabilities enable handling of large amounts of data thereby materially changing the very nature of the HR job. Organizations are now moving from traditional ways of delivering HR services within organizations to delivering data-based decisions for HR functions. Not only has this significantly changed HR roles, but also the requisite competencies. HR executives are now increasingly part of corporate strategy formulation as compared to past roles of providing support for strategy implementation (Ulrich, 1995). More organizations have access to cutting edge and yet easy to use technology that can be incorporated in organizational HR systems.

This paper reviews the impact of people analytics and other emerging, disruptive technologies on HR functions and investigates resulting possible gains in organizational effectiveness. It further investigates a few people analytics projects completed by organizations. Finally, it discusses some challenges that organizations may face while going through the transition from traditional to a more analytical, and data-driven HR.

1.1 People Analytics in a nutshell

Analyzing data to make HR policies and rules is not a new trend – Its roots can be traced back to scientific management where Fredrik Taylor used several experiments to conclude best ways of completing tasks and increasing efficiency (Aitken, 1985). The Hawthorne studies are another example of cases that analyzed human factors at the workplace to gain an improved understanding of productivity (Franke and Kaul, 1978). HR projects in corporations today are similar to the traditional scientific management, except that they operate in an advanced technological and data-rich setup. It is now easy to store and integrate employee data to view customized and interesting trends, enabling better insights for policy formulation (Arellano, DiLeonardo, and Felix, 2017). People analytics helps in understanding productivity trends using individual and group output data visualized using dashboards that employ advanced customized software. Along with analytical techniques, data collection and processing steps are automated to equip executives with customized digital data results for informed decision making (Killinger, 2018).

The centralization of several HR services along with advances in technology has resulted in storage of large amounts of quantifiable and usable human data. Organizations are using these centralized, sizeable and diverse people-dataset (Big Data) for people operations through different analytical and visual methods, thus making people analytics a game changer. These changes are just beginning as people analytics remains an underutilized tool for most organizations (Deloitte Human Trends Report, 2017). As these data and analytical techniques integrate all areas of businesses, organizations are making people analytics more of a business-driven activity taking it beyond just HR's viewership/ownership of people data (Collins, Fineman and Tsuchida, 2017).

Using People Analytics for HR functions

The HR department for long has been a support function because it rarely contributed to visibly direct and measurable outcomes such as sales volumes or profit. Traditionally, it has managed employee data for organizations to perform roles of 'Talent Management' and 'Performance Management'. Till recently, HR departments relied on data from sources like self-reported surveys and appraisal reports. The traditional model of HR therefore is not immensely useful in strategic decision making given the inherent survey/rater biases and inaccuracies. Another main role of traditional HR is to summarize information, create guidelines and policies on the 'Dos' and 'Do Nots'.

Unfortunately, in today's fast paced world, this represents an outdated mode of people management. The HR department in today's era needs to provide preventive measures with high explanatory power. They need to provide quantifiable data such as operational and organizational measures which track productivity and profitability (e.g. revenue per employee, operating costs per work team) that link HR management to organizational performance. They need to be a partner in strategy formulation and work with other business areas to get reliable and accurate data (Ratanjee, 2019).

In today's service driven economy, organizations use and analyze data wherever possible, but talent management data has been difficult to process, and, in some cases, it is non-existent (Moore, 2017). People analytics may provide an answer through use of multisource approach in tracking not only macro trends such as revenue per employee and operating costs per work-team, but also soft measures such as customer-client contact through email, calls, & in-person meetings thereby linking organizational effectiveness with HR. Figure 1 explains how people analytics helps in improved retention using multisource approach in retention compared to the traditional employee retention method.

People Analytics helps improve retention through analysis of a multitude of data-

- Turnover rate
- Similar attributes of employees who leave within 1 year
- Similar attributes of employees with longer tenure Onboarding experience
- Survey data
- Qualitative data such as employee interviews
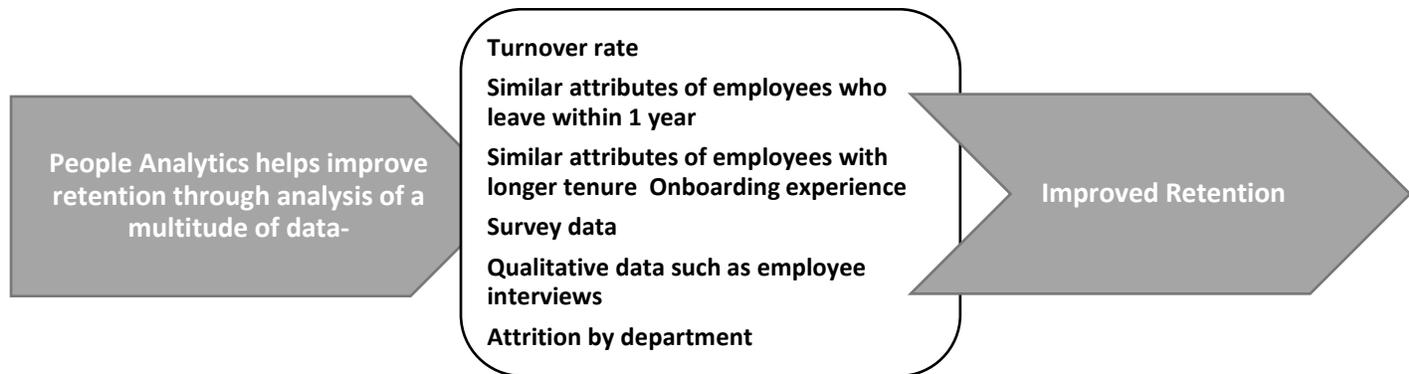- Attrition by department

Improved Retention

Figure 1: Improving Retention through People Analytics

As HR departments are shifting from post-event analysis to proactive data analysis, each HR program is encouraged to have its own measures and aligned results. The focus is increasingly on strategic measures such as current skillset, work diversity utilization and organizational culture among others with an expectation to forecast future needs and map them with current resources and skillsets. HR departments that follow this roadmap move from a role of 'processing information' to a 'knowledge management' platform and find themselves at the center of the strategic planning process (Butteriss, 1998). People analytics technologies with its dashboarding and computing powers makes this transition possible. Moreover, an effective people analytics platform relies on an integrated approach to business and aids this transition to strategic roles to add value to the corporation.

Transition to Strategic HR

People analytics is emerging as a business discipline within HR that supports varied functional areas ranging from operations and management to talent and financial performance (Deloitte Human Trends Report, 2017). Many organizations are now opting for an integrated approach, where HR data is not analyzed and used in isolation but is aligned with other functional areas to provide an appropriate context. Chevron Corporation is a good example of an integrated system for people analytics (Collins, Fineman and Tsuchida, 2017). It created one integrated team of HR business partners, specialists and data analysts across different Chevron units. This enabled the people analytics community at Chevron to overcome a problem of non-alignment between HR and other business areas. They ended up delivering 30% improved productivity along with a significant restructuring to allow for strategic decision-making. Thus, organizations like Chevron

are achieving higher productivity, and reduced redundancy and are making material changes in their policies through use of people analytics. Several other examples are listed in Table 1. Organizations mentioned below have used an integrated approach and achieved efficiency in their HR/People operations.

Organization	Key Function Used through People Analytics
Amazon	Recruitment and Termination
Google	Team Management
Tesla	Employee Referral Program
Chevron	Talent Management
LinkedIn	Employee Retention
Dell	Employee Engagement

Table 1: List of Large and Medium size organizations using people analytics for HR functions

People analytics helps organizations in several ways - advanced technology can collect information on how employees spend their work time and provide information on bottlenecks to productivity. One significant breakthrough is that people analytics can help identify specific training needs to enable employees becoming better skilled in their areas (Killinger, 2018).

Organizations using people analytics for their HR functions clearly indicate a possibility for a new and transforming role for HR. People analytics in its basic avatar has made many of routine HR services automated and aligned with other business functions. It diverts the focus of HR to more strategic activities. The HR is now expected to contribute to core business directly instead of just supporting core business activities. Therefore, HR works parallel with other functional departments on areas which are strategically important for organizational effectiveness. Google, Inc. demonstrates this example through its project oxygen where people operations unit transformed the entire organization's corporate structure and culture through data analysis and not just team dynamics or hiring process (Garvin, 2013). When multisource data is aligned with various contextual information, it becomes 'knowledge' which can be used for transformational changes. Figure 2 explains role of people analytics in changing focus of HR from traditional HR functions to strategic HR.

Fig 2- Transforming traditional HR to Strategic HR

The Big Data and Analytics trend in HR is only going to grow with time. Organizations no longer want to rely on intuition-based decision making or the slow processing of hard data for analysis. A 2017 human trends survey by Deloitte clearly explains this trend where 71% of companies consider people analytics to be a high priority for their businesses. A challenge with this trend however, is absence of the required skill set. Only 9% of surveyed companies in 2017 Deloitte human trends survey admit to have a good understanding of talent and performance links in their organizations. One reason behind this gap is the complexity of people data. Human beings are complex and to convert people data into a quantifiable, acceptable and usable format can be a challenge in itself.

Using people data in its individualistic format can be a roadblock in launching people analytics fulltime within a firm. A way to get around is to use information generated via relational data instead of individual attribute data (Leonardi & Contractor, 2018). Fortunately, different ways to collect relational data already exists in most organizations. For example, network analysis can be performed by combining already existing data such as emails and employee calendars, and can provide useful insights into high performance orientated behaviors and relationships. Similarly, network and graph analysis may help organizations identifying employees likely to commit fraud (Koonz, 2017). Data visualization tools like Tableau, and PowerBI can help in presenting the analyses effectively to decision makers.

Challenges in using People Analytics

With great powers come great responsibilities - people analytics may sometimes increase risks for organizations if not used with caution. People data comes with its own set of legal and ethical challenges that need to appropriately managed (Dagnino, 2017). Some believe that fear of overstepping the boundaries while analyzing data may be an overreaction and it does no harm to

rights of privacy (Killinger, 2018). Organizations and customers, however, have already started to feel the brunt. YouTube, a subsidiary of Google and famous for free online portal of videos paid $170 million to settle allegations of collecting, analyzing and using data on children without parental permission (Bartz, 2019). YouTube is not the only organization identified for unethical and illegal use of people analytics. Lawmakers are taking actions against big companies such as Facebook, Apple and Google for using people data to reduce competition (Kelly, 2019), and against Facebook and Cambridge Analytica for harvesting people data (Hicks and Ellis, 2018) for use in unlawful practices.

It is not just about legal aspects though; Any big data in organizational setting is prone to unethical use, especially people data. Different variations of workforce/employee data can reveal very meaningful insights, but the bigger question is - 'Do employees condone collecting all types of data?' As a case in point, Worksmart work tool by Crossover takes screenshot and pictures of remote employees every ten minutes. The comfort level differs from employee to employee but activities like this could lead to development of trust issues between the employee and employer. Several survey reports show that people do prefer to have privacy for the collection and use of their data (Akamai Privacy Survey Report, 2018).

In additional to privacy and anonymity, it can be a forceful attempt to alter people's choice of lifestyles when people analytics is applied to customer data. As an example, selling online through Facebook/Google advertisements or through smart speakers (such as Alexa by Amazon, Inc.) is a manifestation of use of the same techniques as applied towards customers.

Finally, like any other data-driven analytical approach, people analytics struggles most with the acquisition and organization of data. However, a relatively unique challenge in using data for HR practices is in pairing the appropriate data engineer with the HR subject matter expert given that these two skillsets rarely overlap. With only 0.2% of HR professionals being an expert in digital data management, this challenge is enormous (Koontz, 2017).

Future of Technology Driven HR

AI (Artificial Intelligence) and ML (Machine Learning) have been adopted quite rapidly in healthcare and manufacturing sectors. RPA (Robotic Process Automation) is a related technology being adopted in many industries to perform routine tasks in hospitals, office, factory floors, and executive suites. Most workplaces of the future will have a mixture of automated, semi-automated, and manual roles for workers. The impact of these new technologies will be felt by HR departments in recruitment, retention, and management of the highly skilled employee base. Amazon.com, Inc. has already started utilizing an AI recruiting tool to support its growth plans.

New technologies get better over time and are not without their teething troubles. For example, the Amazon tool for AI recruitment learnt by going through the previous many years of company hiring. As relatively far more male candidates were hired historically, it initially concluded that male candidates are better than women candidates (Dastin, 2018). This example highlights the need for an active involvement of the HR users in the development of future technologies to remove biases. This further reinforces the need for HR personnel to have broader

skillsets overlapping with technology to truly unlock the potential of technology to transform HR. It is certain that while it has its fair share of challenges, analytics and disruptive technologies will influence HR roles.

A newcomer to the disruptive technology group is "Block chain" which can facilitate data collection and storage as well as ensure data security and confidentiality from inception. The typical blockchain application in HR can be described as depicted in the diagram below.
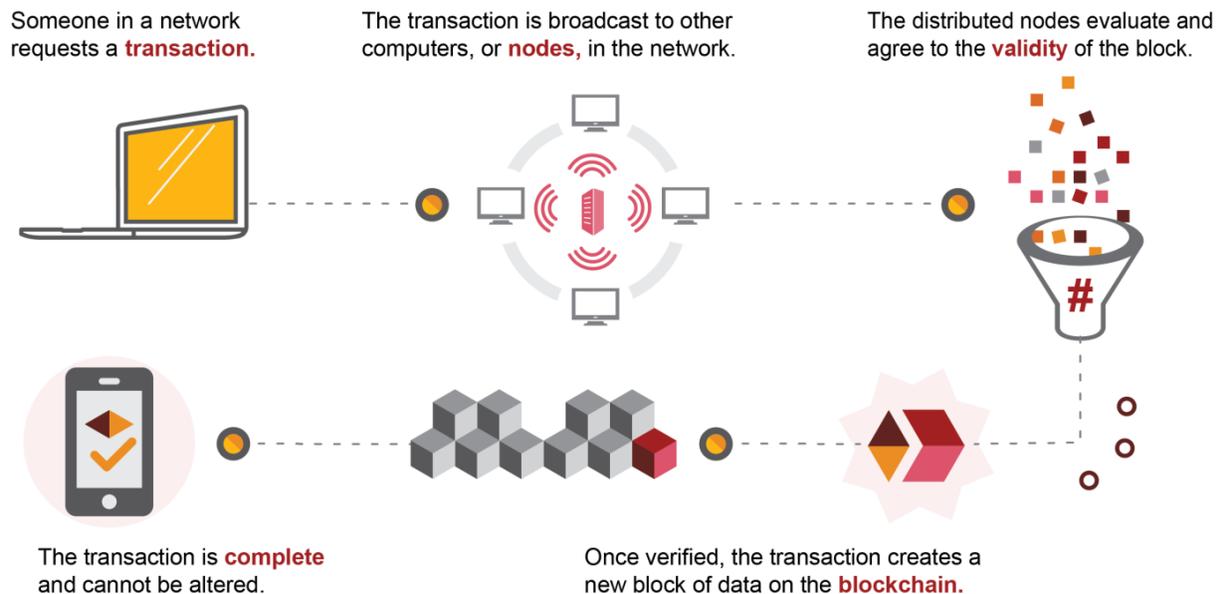
Someone in a network requests a **transaction.**

The transaction is broadcast to other computers, or **nodes,** in the network.

The distributed nodes evaluate and agree to the **validity** of the block.

The transaction is **complete** and cannot be altered.

Once verified, the transaction creates a new block of data on the **blockchain.**

Fig 3 – Bloackchain process (source: https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html

Blockchain is a type of database that maintains a growing list of records that cannot be edited or altered because alterations would require the impossible task of changing every node in the distributed network. It holds data and programs in encrypted "blocks" of individual transactions and the results of executable files, programs and codes. Each block is linked to the previous block making it a "blockchain". In an area like HR where data privacy, validity, and authenticity are critical, data about potential, existing, and terminated employees using blocks chained together without possibility of altering or changing at any stage can revolutionize the HR data management.

Conclusion

In the future, HR roles will see a significant increase in their power as they see a shift in their traditional roles from managing hard employee data to being strategic partners in policy changes and future leadership for organizations. Such a dramatic change in scope of responsibilities will require HR organizations to re-tool their own skill base to include data scientists and cyber security

experts. They also need to keep pace with rapidly evolving technology and integrate it within boundaries of business requirement and cultural alignment.

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