

# EVOLUTION OF HUMAN RESOURCE ANALYTICS: AN EXPLORATORY STUDY

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**Abstract:** Emerged in the old forms of traditional measurement sources of different sub-functions, HR analytics have come a long way today. It has passed through the phases of measuring the sub-functions of HR, staffing technique and criteria effectiveness, introducing comparative benchmarking on functional parameters of HR at the industry level, predictive and prescriptive analysis etc. Different experiments, academic researches such as 'Moneyball' experimentation by Oakland A, USA; 'Project Oxygen' by Google etc. and emergence of big-data era have added many twist and turns in the evolution of HR analytics till day. However, the continuum is still not ended and several growth possibilities are yet to be explored as there is a good deal of confusion remains regarding the specific focus areas. Still majority of the Fortune 500 companies are restricted to traditional analytics practice and have not shifted to the advanced HR analytics, though a MIT study has shown specific proof of better impact caused by HR analytics in progressive firms. Finally, it can be concluded that the factors like choosing the right purpose and moment of interventions, adopting appropriate methods of analytics, collaborative interventions, scaling up of HR as a point of interventions are properly required to implemented for optimum impact to be caused by HR analytics in the organizations.

**Key words:** Human Resource Analytics, Evolution, Descriptive study

## **Introduction:**

It has been a half century since Human Resource was known as the personnel function, and two decades since Dave Ulrich challenged the same to get a seat at the table. As part of the evolution of the function toward being more strategic, the discipline of Human Resource has moved away from an emphasis on basic measurement to scorecards, engagement surveys and strategic planning. *Soundarrajan and Singh (2017)* in their work on HR analytics have identified these three main areas of measurements, practiced in HR as the foundation of emergence of HR analytics. Despite, the enormous attention being paid to HR analytics since last more than one decade, good deal of confusion still exists regarding where people should be focusing their attention. Since, HR measurements can be traced back to scientific research that occurred at some point in the past and what is not explicitly based on research usually has been found to have a strong measurement component. *Rao and Sinha (2016)* have therefore commented that data and analysis have been part of HR for as long as the function has existed.

## **Trends culminating to the growth of HR analytics:**

Different pervasive trends can be related to the growth of HR analytics as a significant instrument as it seems today. The *first and foremost trend* remains positioning of HR as strategic identity. It has been observed that, HR has been searching for the longest time for the secret source that will enable it to be more strategic. However, some studies have shown that over the past two decades, surprisingly little change happened in the amount of time people in HR spent on strategic activities (Lawler and Boudreau, 2012). A study conducted by Amstermin (2015) has also shown that most of the middle and senior level HR executives of America have remained unchanged more with transactional activities than strategic activities. There is a lot of basic work that has always been and will always be part of the work, most of which does not seem particularly strategic at first glance; making sure that people are paid properly, open positions are filled up appropriately, performance reviews are conducted, development planning takes place etc. However, under certain circumstances, these activities can be strategic, yet most of the time these are about enabling the business to do its work by ensuring people process implementation. Sometimes, though, when there is a critical business need best served by these traditional HR practices, everyday HR engagements emerge as strategic. So, it can be said that whether traditional HR is truly strategic or not often depends on the context. Therefore, one of the key jobs for HR analytics has remained to understand the context of HR implementation. The *second trend* can be identified in the rapid development and deployment of technology that makes it easier to collect and store data in easily accessible formats. This includes both the proliferation of survey vendors and internet based self-survey tools. It also includes the widespread installation of enterprise resource planning (ERP) and other business IT systems that link together for joint analysis of previously disparate data systems that were hard to integrate. The *third trend* is the increased awareness of the importance of practicing evidence-based HR. This trend is however found to be more aspirational than widespread. It has got more attention in the academic and research communities than within the HR function itself. Yet the growing number of data scientists and HR professionals with advanced degrees in industrial-organizational psychology and other fields have provided a good deal of internal momentum toward taking a more scientifically valid approach to defining and analyzing HR issues.

In the present situation, tons of data available that measure the execution of HR processes such as headcount, vacancies, time to fill, completion of performance reviews, distribution of ratings of performance, details on individual development plans ETC. However, HR analytics is still in limited usage to describe these processes without embedding the initiatives in strategic context. A recent study by Narsimhan (2016) has indicated that though HR analytics is becoming popular rapidly in India, yet its strategic contextualization has remain restricted to primary interface levels only in most of the organizations.

### **Evolution of HR analytics:**

In 1950s, Peter Drucker wrote, ‘Some wit once said maliciously that [personnel management comprises] all those things that do not deal with the work of people and that are not management (Drucker, 1954). This reflects the truth that once HR struggled to be accepted as part of management. J Barney (1991), for the first time clearly articulated on the resources an organization has and their link to competitive advantage. Based on the resource based view (RBV) theory, propagated by E.T. Penrose (1959), Barney’s work highlighted the aspects of linkage between human resource management and business strategy. As per RBV theory, any organization has tangible and intangible resources. Barney further elaborated that resources,

those can be sources of competitive advantage. He also, highlighted the preconditions for successful implementation, which later became known as VRIO (Valuable, Rare, Inimitable and Organized) framework. However, many scholars have criticized VRIO framework on the ground that the having human capital alone is not sufficient for competitive advantage. According to *Cantrell, Benton, Laudal and Thomas (2006)*, language, behaviours and actions displayed by human capital at workplace are critical to capitalize on the valuable resource, that is human resource management. In the meantime, *Baird and Meshoulam (1988)* in their studies have highlighted the need of alignment of HR policies with the organization life cycle stage and business challenges, but also within. According to them, vertical and horizontal fit ensures that the HR function become complementary to other business functions in achieving organizational performance. Vertical fit ensures cross-functional collaboration between HR and other functions leading to better appreciation of how HR contributes at the business strategy level in solving key business challenges. Horizontal fit ensures collaboration between various HR sub-functions so that their synergy helps HR contribute in achieving business objectives. As all of these arguments make one point that human resource plays significant role in achieving business results, the challenge lies in demonstrating the link between the HR, strategy and performance using data. Though, HR's tryst with data seems to be very old, yet relating the same to organizational strategy and performance has been exclusively attempted since the concept of HR analytics came into forefront. HR measurements in real sense and form, started with the challenge of finding right persons in the organizations. Since world war II, the acute shortage of skilled manpower was the biggest challenge to the organizations. US army started using skill tests to find the people with the right attributes and this was later adopted at a large scale by American Telephone and Telegraph Company (AT&T) and other American multinationals. In the process, they adopted scientific measurement tools through skill and attribute testing. However, since, mid 1990s, measurements were more integrated to strategic dimensions of HR functions as more and more forward looking companies started adopting predictive models, assessment models. In the meantime, *Jac Fitz-enz (1978)* published an article titled "The measurement imperative", where he proposed a radical idea. In it, it was proposed that human resources activities and their impact on the bottom line could be measured. The same triggered debate and interest by other scholars leading to more researches on measuring HR. Jac Fitz-enz's work has literally initiated the beginning of data capturing for key HR activities such as staff retention, staffing, compensation, competency development etc. Subsequently, by 1990s, the concept of 'Benchmarking' became popular by incorporating comparison of data in the measurement of HR functions. Gradually, it reached the pick in early 2000. But soon it was found that benchmark was not providing any insights for action and the only benefit was a splace how the company was doing compared to others. Also during the 1990s, emergence of human resource accounting and utility analysis were witnessed, which also added new dimensions to quantify HR, though with limited impact (*Crestone, 2014*). A more advanced and comprehensive use of metrics was found in 2002 by Oakland A, the legendary baseball team of USA. Billy Beane, the general manager of the team extensively used the metrics to select the team members, which was then indeed a dynamic initiative in comparison to others (*Coolen and Ijsselstein, 2015*). Oakland A's with a paltry budget of US 41 million were competitive with teams with much larger budgets. It extensively used *sabermetrics* (player data based on extensive analysis of baseball) in selection of players. Billy found that players with strong *sabermetrics* were correlated to winning games than those players who were strong in traditional metrics like batting average etc. Also it was found that *sabermetrics* also offered an opportunity to put

together the match-winning team, which was far less expensive. The result was phenomenal. Oakland's A was not only able to source better but less costly players, which in turn delivered excellent results on ground. Based on this successful experimentation by Oakland A, Lewis (2003) developed a path-breaking strategy on metrics based selection model, which is known as 'Moneyball' concept. Extension of the 'Moneyball' concept to the business world happened in large scale since 2006. In 2009, global leader Google started 'Project Oxygen' to find out the attributes of effective managers. *Devenport, Harris and Shapiro (2010)* published an article in *Harvard Business Review* on 'Talent Analytics' and it was an instant hit across the globe. Google's "Project Oxygen" also became globally known, when 2011, Google shared the results of it highlighting data based findings on what a perfect manager stands. Soon thereafter, there were series of research publications, which highlighted the benefits of using analytics in workforce management. Frequently articles were found to be published in Wall Street Journal, Forbes, Harvard Business Review, Fortune Magazine etc. As per a study by Patrick and Auke (2015), a total number of twenty articles on different aspects of workforce analytics, including the famous 'project Oxygen' experimentation. Some of these works however identified few shortcomings. For example *Garvin, Wagonfel and Kind (2013)* in their research shown that the some of the parameters covered in 'Project Oxygen', such as academic grades etc. have no positive co-relation to the employee performance. However, more significant evolution at this stage, which was related to 'Project Oxygen' experimentation of Google and subsequent researches were a dynamic shift from traditional metrics based HR measurements to 'predictive analysis' of HR analytics, which was a futuristic development.

#### **Contemporary status of HR analytics:**

It must be accepted that HR analytics has not reached the final stage yet and it is still at the stage of 'continuum'. Researches and experiments are currently being carried out on level of maturity of HR processes, data quality and capabilities to implement HR analytics on wider aspects and dynamics of human resource. Since last few years, a trend has been found, where more emphasis is being given on showcasing metrics focusing on 'efficiency', such as lowering HR cost per employee vis-à-vis increase in productivity per hire. Organizations in service industries across the globe including banking, hospitality sectors have gone one step further and they have expanded 'efficiency metrics' into 'effectiveness metrics', which are indeed the strategic based value addition to the discipline of HR metrics. Though Google leads the way the HR analytics have been used through both predictive and prescriptive analysis, large numbers of world renowned organizations such as Shell, Procter & Gamble, Morgan Stanley, Xerox, General Motors etc. have also started using the same in their ways. However, still the total number of organizations globally using advanced HR analytics is small and distributed unequally. Latest study by *Bersin, Leonard and Wang-Audia (2013)* has shown that only 10% of Fortune 500 companies are using advanced analytics and out of this 10%, only 4% are using predictive and prescriptive analytics and remaining 6% are still restricted to basic statistical techniques for HR analytics. However a subsequent study by *Bersin (2016)* has shown that the number of organizations using predictive analysis and advanced HR analytics has risen to 8%. He however has held difficulty of scaling up of HR at the highest level responsible for this slow growth among Fortune 500 companies.



### **Era of Big-data and its impact on HR analytics:**

Big-data is considered as equivalent of telescope and microscope in terms of revolutionary ideas. As telescope helped to see stars and galaxies, which are never visible to naked eye to the universe and similarly, microscope made it possible to capture the life at cell level. In the same manner, big data is extending helps to the business to capture unseen patterns and trends, to find answers to unanswered questions and to deal with uncertainties. As it is widely accepted that 'human factor' is the key driver of business, quantification of anything and everything related to people and process of the organization, which ultimately will effect the business performance has become one of the most prominent intervention points of big-data based analytics. Traditionally, HR has always been collecting volumes of data on various dimensions of human resources, such as demographic, performance management, compensation/benefits, education history, job location, training, talent movement through *Human Resource Information System (HRIS)*. However, with the emergence of advanced analytics, based on predictive orientation, top managements started demanding to HR to show evidence of HR investments impacting the top-line and bottom-line of the organization. In the era of big-data, the possibilities of more accurate predictive and rational justifications from HR side and the complexity of demand from top management have increased manifold, atleast in those organizations with a specific analytics culture. *Cascio and Boudreau (2011)* pointed out that HR faced 'big-wall' in moving beyond benchmarks and scorecards to demonstrates its 'strategic impact' in terms of causation and organization effectiveness. Presently the promise of big-data to HR to help to cross this wall and to demonstrate its impact on top-line and bottom-line by showing with data how various elements of employee life cycle can drive revenue and profits and make people as a source of competitive advantage are bearing fruits.

### **Conclusion:**

In 2011, Massachusetts Institute of Technology (MIT) conducted a study on analytics, which has found that top performing organizations use analytics five times more than the lower performing organizations (*La Valle et al. 2011*). Many other studies since then have finally concluded that HR analytics can help organizations to effectively deal with fiercely competitive business environment at both tactical and strategic levels. It has found that at strategic level, typical competitive challenges faced by any organization include productivity, innovation, global scaling, lean delivery etc. Through proper alignment both vertically and horizontally using big-data approach, the HR functions remain at the verge of exponential growth towards contributing better impact to the overall organization. However, the factors like choosing the right purpose and moment of interventions, adopting appropriate methods of analytics, collaborative interventions, scaling up of HR as a point of interventions are properly required to implemented for optimum impact to be caused by HR analytics.

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