

## HR ANALYTICS AS CATALYST FOR TRANSFORMATION

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### ABSTRACT:

There is a dawning awareness that data, as a commodity in itself, has little value to an organization unless it is transformed into meaningful intelligence. The sheer volume of Big Data that organizations can and do amass is overwhelming. The business has changed dramatically with data analytics becoming a way of life for HR personnel worldwide. HR analytics is the buzzword among practitioners and consultants in the field of human resource management. Advanced Analytic drivers such as increased data, increased computational power, analytical algorithms have developed and positioned HR analytics as a necessary solution. The ease to use HR analytics will ascend once we are able to overcome the challenges faced in HR analytics. HR managers are familiar with the concept of HR Analytics but lack the analytical muscle to execute it. HR is all about people and automation technology should augment the efficiency with which people work, not replace them. When it comes to a company's annual HR strategy and planning cycle, much of work is still done manually by expert HR researchers, analysts, and data scientists. A changing landscape in both technology and talent means HR must frequently seek out better tactics, processes and tools to survive in the disruptive environment. This paper gives insights on the alchemy of HR function and the ways to manage the vexing challenges faced in analytics.

**Keywords:** HR analytics, Big data, Talent management

### INTRODUCTION

The buzz word analytics is on every manager's mind today! So what exactly is analytics? According to one heavily cited industry report, big data is anything too large for typical database tools to be able to capture, store, manage and analyse – a necessarily subjective and flexible definition, which ranges from 'a few dozen terabytes to multiple petabytes'. The latter definition would encompass data held on existing HRIS: small by the standards of large unstructured data, but big by the standards of the quantitative data sets used in academic social science and able to generate 'smart' insights by virtue of the longitudinal nature of the data.

By contrast, the former definition would focus exclusively on unstructured data, including email content, communication through social networks, web searches, digital images and video footage, and location data from smart phones and other electronic devices. Therefore, in practical terms, analytics involves both traditional relational database and spreadsheet-

based analysis, new forms of database software that allow very large quantities of data to be stored and organised more efficiently and new techniques for representing and understanding data through visualization.(Andy et al., 2016).The role of HR revolves around recruiting, developing, compensating, integrating, and maintaining human capital. With technology enabling the HR function in many aspects, technology –led business outcomes is the key to the future of successful HR. Moving forward, to continuously add value, HR managers must replace the intuitive approach with data-driven insights and recommendations. And this is where people analytics play a quintessential role.

### HR ANALYTICS

HR analytics was coined by Jac-Fitz-Enz in his book *How to Measure Human Resource Management* in which he also he also outlined the metrics which can be used to effectively measure employee performance. Since then HR analytics has evolved from an experimental approach to effectively

manage human capital to a diverse set of strategic tools and technique for improving employee engagement, reducing employee turnover, administration and forecasting.

HR analytics has expanded and now offers solutions to many business problems by integrating a company's HR data with its strategies. People analytics helps enable organizations to continue doing what is right, identify and stop doing what is not right and predict and take measures even before something goes wrong.

Human resource analytics (HR analytics) is an area in the field of analytics that refers to applying analytic processes to the human resource department of an organization with the view of improving employee performance, hence getting a better return on investment. HR analytics is all about building bridge of effectiveness between what HR does and outcomes of the business – and then creating strategies based on that information. The key aspect of HR analytics is to

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provide data on the impact the HR department has on the organization as a whole (Frost & Sullivan, 2017).

More specifically, data held in HRIS typically are composed of basic information on the workers. Additionally, there are a variety of 'soft' performance data that might be collected from appraisal and performance management systems, along with information on training and development that the worker has experienced, information on grievances, capability and disciplinary cases, dispute resolution, internal communications, participation schemes and staff attitudes surveys.

Historically, the data gathered is stored in separate pieces of software designed to carry out different HR processes, but increasingly, as organizations invest in upgrading HRIS, data is being gathered together and held in cloud-based data warehouses. Conceivably, these data could be combined with 'bigger' data on what a worker does (location data from mobile phones, Internet browsing histories, electronic calendars and other handheld electronic devices used in production or service delivery), who they communicate with (email and phone records and online collaborative tools) and what they communicate about (the content of email, instant messenger conversations and SMS messages, and recordings of interactions with clients).

Scattered blog posts provide hints of what might be possible with big data analysis using these types of data: extracting information on mood and morale from large bodies of email messages, mapping social networks and ties within organizations based on electronic records of communications, using geo-location data from mobile devices to gain a better understanding of what employees do and how they interact with one another.

But there is a challenge, the technical means to integrate, organise and analyse data held in conventional HRIS with data from these larger unstructured sources are as yet not well established due to lack of expertise and practical knowledge. There are also significant issues of privacy, consent and ethics to address when storing and analyzing HR data. Making better use of this data to create and capture value is a necessary prerequisite to the more advanced forms of big data analysis that are in development. (David et al., 2016).

### Why do we need Data Analytics?

We know about Data analytics and how important it is but why exactly we need analytics?

1. Big Data analytics helps reduction in cost of data storage, increase efficiency of operations, as analysis of the entire value chain of an enterprises taken care of
2. Gives detailed understanding of employees/customers motivations and desires, and reveals patterns of behavior, helping unlock powerful new opportunities.
3. Helps company to generate predictive scenarios from historical data sets, and enables an organization to stay agile in the face of those predictions.
4. Analytics will drive broadening adoption of IoT and allow it to reach much higher levels of evolution.(Frost & Suvillan, 2017)

Firstly, HR analytics was used to establish a relationship between leadership quality and lower turnover levels, which resulted in higher levels of operator competence, which in turn fed through to fewer accidents, less maintenance time and higher customer satisfaction.

Figure: 1



Secondly, analytics was used to demonstrate the significant benefits the business derived from the company's graduate training programme; the programme was doubled in size as a result. Sparrowet al. (2015) cite the example of how Tesco applied the analytics tools developed to understand its customers to better understand its workforce and how McDonalds was able to identify how staff demographics, management behaviours and employee attitudes interacted to optimise restaurant performance.(David et al., 2016)

"We're pretty good about collecting data, running data and looking at data," but not at using it for predictive analytics, Michael Rochelle, chief strategy officer and principal human capital management

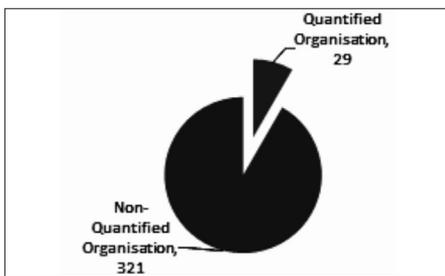
Survey data Brandon Hall collected last year showed that only 15 percent to 22 percent of organizations "can use data for predictive analytics" in each of five areas: employee performance, time and attendance, scheduling, absence and leave management, and salary and labor costs. (Martin Berman-Gorvine, 2015)

Only 4% of the 435 U.S. and Canadian company respondents to a recent survey reported using predictive analytics to drive their talent management decisions, according to Josh Bersin, an expert on human resources and a contributor to Forbes.com. Contrast that with Deloitte's The Analytics Advantage study which revealed 55% of surveyed companies say they invest in analytics to drive marketing and

sales, and you can see the maturity gap between the functional areas. Even within the HR function, only 0.2% of HR professionals are in an analytics function. (Katherine Koontz, 2017)

A consistent finding from the annual Sierra-Cedar HR Systems Survey was that “organizations outperform with workforce analytics”

Figure :2



Out of 350 organizations that participated in the study, 29 were identified as Quantified Organizations (QO) —that is, organizations that are data-driven in their decision making. Four Characteristics of Quantified Organizations: Business Intelligence (BI) Process Maturity, Manager Access to Analytics, Data Sources and Metrics Categories

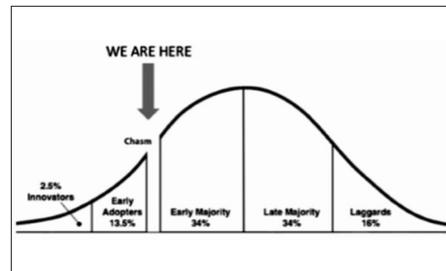
Higher Return on Equity (ROE) is the measurable factor for outperformance, which quantifies an organization’s success at generating profits from every unit of shareholder equity, such as that allocated to HR technologies. A company that earns ROE in excess of its cost of equity capital has added value. QO’s saw a 79% higher ROE than all other organizations according to the 2014-2015 survey results, suggesting that leadership in HR analytics enables outperformance. In 2013, Bersin by Deloitte research showed that the stock prices of companies with high impact talent analytics outperformed their peers by 30% over the previous three years. Also in 2013, the CEB Analytics Survey found that organizations moving from median to leadership in workforce analytics improved their

talent outcomes by 12%, leading to a 4% improvement in gross profit margin. This translates into \$12.8 million in savings for every \$1 billion in revenue! (Lexy Martin, 2017)

Figure :3 (Lexy Martin, 2017)



Figure :4 (Lexy Martin, 2017)



Innovators and early adopters implicitly understand that analytics provides a strong competitive advantage. What keeps HR professionals from embracing HRA through the use of BD and adopting this new innovation? Some early adopters of HRA who have had positive results are Google, SAP, Xerox, PepsiCo, FedEx Corp., and Aetna Inc., just to name a few. In an article titled “How Google Became the #3 Most Valuable Firm by Using People Analytics to Reinvent HR,” Sullivan (2013) writes, “Google has the only HR function on the planet that is managed based on people analytics. Google moved into the No. 3 position among the most valuable firms in the world”. Xerox revolutionized the candidate screening for their call centers by utilizing BD and predictive analytics; the result was a turnover decrease of 20% (Rafter, 2013).

Johnson Controls has a newly created function within their Human Resources organization focused solely on

workforce analytics. Help enable data-driven people decisions and share the insights from the data. Ride the wave of enthusiasm for workforce analytics and help build the function from the ground up, as it grows into a global centre of Expertise. The mission: create an evidence-based culture that endorses analytics at the highest levels

Many companies are trying to use advanced analytics to improve organization’s decisions but technological challenge is hard enough. Companies have to identify the right data and develop useful tools, such as predictive algorithms. After this the tougher task is getting people to actually use the new tools.

New technique of learning and development which involves technology and analytics to counter the boredom in traditional L&D process is use of gamification to encourage people to invest the time and learn how to use the new tools. Gamification means using motivational techniques like those the videogame industry has put to such effective use.

Such motivational concepts and techniques encourage decision makers to use new analytical tools and collaborate with each other — both to improve the tools and to better their ability to make more informed decisions. (Lori Sherer, 2015)

**Time to turn to data and analytics**

“When the complexity and variation of human decision making for a set of tasks exceeds existing capabilities, it’s a perfect time to turn to data and analytics to provide guidance” -By Katherine Koontz

Company envision a comprehensive people-analytics approach to ensure that employees are recruited, on boarded, developed, promoted and rewarded in ways that maximize their value to, and satisfaction with, their employer.

**Some potential use cases for people analytics include**

1. Path analysis developed to understand the education, training, leadership skills and development opportunities that result in the most successful employees.
2. Network analysis of emails and calendar entries highlights the relationships between individuals or specific roles that lead to the high performance.
3. Sentiment analysis of emails and performance reviews for high-performing managers provides insight into their approach to management.
4. Network and graph analysis of employees who commit fraud to identify others who may also be likely to commit the act.

When data engineers and data scientists are paired with HR subject matter experts to iteratively apply analytics against an intractable human management problem is a great way to deliver value quickly. That's why a robust human resources analytics program will become an imperative for companies looking to attract, grow and retain a happy and productive workforce. (Katherine Koontz, 2017)

The Future of the Workplace Such discussions about modifications to HR operations are especially important given the changing nature of the workplace. HR can optimize a business by using data analytics to build ad hoc teams based on individual skills, talents and strengths.

They can also use data analytics to make sure these different types of workers are compensated in the most efficient way - to maximize performance. Also over the past 10 years, the role of the C-suite has been redefined; many executives recognize big data and predictive analytics as the next opportunity to build competitive advantage. This

actually makes it important for HR teams to adapt the approach of data analytics.

**THE EVOLUTION OF ADVANCED ANALYTICS**

**Descriptive Analytics**

This stage defines business challenges and opportunities, comprising data warehousing. Key question answered: What is the current scenario?

**Diagnostic Analytics**

This stage provides insights as to the reasons for events, using techniques such as drill-down, data mining, and correlations. Key question answered: What is the reason?

**Predictive Analytics**

This uses text and data mining technologies, and primarily deals with forecasting.

Key question answered: What will happen next?

**Prescriptive Analytics**

This stage of the value chain deals with process optimization, modeling, and simulation for strategic decision making. Key question answered: What should I do next and why?(Frost & Sullivan, 2017)

**Key drivers of Data Analytics**

- Increased Data
- Increased Computational Power and Storage
- Evolving Analytical Algorithms
- Business Agility (Frost & Sullivan, 2017)

**The Benefits of HR Analytics**

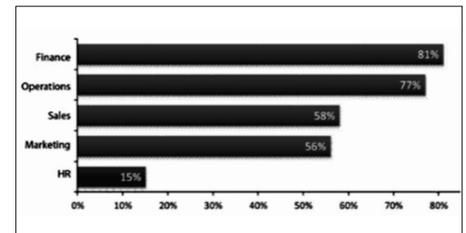
- Better Employee Engagement and Satisfaction
- Higher Staff Retention
- More Effective Training and Development
- More Successful Talent Acquisition
- Performance Management (Bosman, Coenette 2017)

**Advanced Analytics Challenges**

- Lack of Executive Buy-in
- Shortage of Human Talent
- Finding the right mix of Tools(Frost & Sullivan, 2017)

*Which functions have strong analytics capabilities?*

Figure :5 (Katherine Jones, 2014)



The HR function is lagging behind other functional areas of management in the adoption of analytics technology and in the analysis of big data. Little evidence can be seen that HR analytics is developing into a ‘must have capability’, which will ensure HR’s future as a strategic management function. Many in the HR profession do not understand analytics or big data, while analytics teams do not understand HR. (Katherine Jones, 2014). This it is crucial that analytics team collaborate with HR professionals for outcomes. Today’s talent management programs consistently are providing more and more data points for our use. Consolidating the data is not an issue. But to have the required skills to make accurate business decisions based on the analysis of data is what we have to deal with. The ability to analyze the data is very important, and all HR professionals today should be able to have command of the rudiments of data creation and use. Consider data visualization, It is another requisite skill that enables HR members to analyze and communicate findings from complex data sets. (Katherine Jones, 2014). The central problem is, the ideas about HR data and analytics have not penetrated the thinking of much of the HR profession. Many HR professionals are skeptical because they question whether people can be reduced to

metrics. Where these ideas have penetrated HR thinking, there remains the problem of praxis, the solution to which is not well understood in HR circles. (David et al., 2016)

Silo Mentality, For the potential and usage of analytics in HR and workforce planning –all should talk about it in conferences and meetings to share as much as they can to make sure the learning reaches to all, but it is seen that people don't share too much for reason, nobody can do it better than them or don't want to lose their expertise...! In relation to this, there may be insufficient data to ask the right questions. Silo mentalities within organisations prevent HR-related data being combined with data on other determinants of productivity and performance, so it is often hard to build analytical models that examine the role of HR-related factors while controlling for other relevant factors.

### How to Fail at HR Analytics in 7 Easy Steps for failure

1. Position your program as strategic even if you've done nothing that qualifies it as such.
2. Focus on the solution before defining the problem.
3. Invest most of your resources in technology rather than partnering with the right vendor. "Build vs. buy"
4. Hire experts before they demonstrate any expertise.
5. Accept a role and reporting relationship that compromises your impact and integrity.
6. Delude yourself into believing that others value what you are doing as much as you do. Be realistic about your role in the organization.
7. Believe your own press. (Mark Berry, 2016)

Resources managers are facing fresh set of opportunities and challenges as a result of fast-evolving digital technology

1. A ,resilient digital platform that is secure, available on demand, and easy to set up and use – The digital platform is at the heart of HR operations. It's where intelligence is leveraged and insights moved around the organization. Increasing the frequency of updates and the likelihood of cyber-attacks – service providers must focus even more on building secure, scalable and agile systems.
2. Anywhere, anytime digital insights that improve business performance. Predictive analytics can move a business from a reactive to a proactive state, allowing buyers to look around the bend and see what's coming next. Useful and actionable results.

In HR, embracing analytics is critical. There is a war for talent, particularly in areas such as digital marketing, IT security and programming. (Publication info: Weblog post. Newstex Global Business Blogs , Chatham: Newstex. Oct 9, 2017)

### CHALLENGES

#### No practical experience only theoretical knowledge

The development of HR analytics is being hampered by a lack of understanding of analytical thinking by the HR profession. It has come to notice that HR practitioners who have engaged with literature of HRA are enthused by its ideas, but feel no better informed about how to put them into practice than they were before they read it. This gets to a situation where, despite the promise, successful strategic HR analytics projects appear to be few. Although many organisations have begun to engage with HR data and analytics, most have not progressed beyond operational reporting. There is little evidence of the strategic use of HR analytics.

Many in the HR profession do not understand analytics or big data, while analytics teams do not understand HR (Publication info: Weblog post. Newstex Global Business Blogs, Chatham: Newstex. Oct 9, 2017)

### Where to find the right skills

A bigger challenge is to find the right skills to become a data-driven HR department than rolling out the technology. HR managers need to think about how they will sharpen their own digital skills as well as find specialists such as data scientists to help them exploit their data. Do these skills exist in the organization or must they be recruited from the outside? Increasingly, running a successful HR department will be about blending geeks' technical and analytical skills with the intuition of a seasoned HR leader. (Bosman, Coenette , 2017).

### The "Why" Debate

"Why should we do HR analytics?" Using HR analytics as a means of proving the value of the HR function is a misuse of analytics that fails to create any lasting value for an organization.

This perspective may fail to capitalize on the tremendous value that can be created for an organization as a whole from the effective application of HR analytics. The purpose of HR analytics is to improve individual and organizational performance.

Added side benefits of HR analytics are that it can help identify where not to be spending time, effort and budget, thereby reducing HR workloads and it can enhance the credibility of HR. (Laurie, et al., 2011)

### HR analytics is probably 5-10 years behind other analytics disciplines

It was noted that HR analytics is probably 5-10 years behind other analytics disciplines such as logistics and marketing analysis for example. But rather than worrying about this fact,

the teams should look at the reasons why and also how to utilize those skills. Analysts in marketing study mathematics, physics, statistics and then apply these techniques to an industry. They don't know everything about marketing strategies on their first day in the role, but they can design a model to tell with a very high degree of certainty what the propensity for something to happen is.

So if the companies don't utilize these data skills, they may stay behind other analytical disciplines and only be able to do a small proportion of what could be possible with the data available to them.

#### **Organizations usually indicate the following two interrelated reasons:**

- Different systems are used to record employee information. Over the years especially large organizations have grown to complex data architectures but haven't defined and implemented a proper data integration solution.
- The quality of employee related data is not sufficient to be used for analytics. Information from employees may be incomplete or has not been controlled for consistency and uniformity.

Of course, If the data is unreliable and incomplete, the outcome of an analysis is unreliable.

But if organisations have the perfect data warehouse and some analysts who can perform exploratory analyses possibility of getting data 100% standardized, up-to-date and available is possible.

#### **How All the departments analytics are inter related**

For example, a regional senior executive indicates they are seeing a decline in customer satisfaction and says they might actually lose a big client. This is not perceived as an HR issue and it very

well could be that it isn't. But it is reason enough to explore all possible causes. The HR has performance data that is reliable, consisting of a performance rating and a potential score and can ask an analyst to analyze these data and slice-and-dice by region, management level and explore further. Perhaps there can be a link drawn between regional performance by managers and customer satisfaction or discovering something else in the analysis that doesn't impact the issue directly but is something that does need attention. For example, if a specific group scores high on 'has reached potential'. (Source: FCTB INDICIA)

#### **PRESENT PRACTICES**

Current Human Capital analytics practices that is prevalent in the industry:

1. Correlation: Correlating people data and business is definitely the future of analytics. However, care must be taken not to use the same for major decision-making as correlation can, sometimes, identify only mere coincidences.
2. Benchmarking: Benchmarking, a powerful data collecting tool, should be used as a way of looking at data, and should not be considered as an analysis procedure.
3. Cause-Effect Analysis: In order to perform cause-effect analysis in Human Capital analytics, Structural Equation modeling methods are being used.
4. Regression Analysis: Regression as a statistical tool helps to view multiple facets of data simultaneously and enables the user prioritizes the facets of people data that impact business outcomes. (Dr. P. Raghunadha Reddy, P. Lakshmikeerthi, 2017)

#### **BARRIERS TO HR ANALYTICS**

The major impediments to the application of HR analytics identified are :

- Inconsistent and inaccessibility of data
- Data quality issues
- Lack of standard/generic methodologies to analyse HR data
- Executive buy-in
- Skill gap in analytical knowledge & experience
- Funding issues
- Wrong or not targeting the right analytical opportunities
- Problems in initiating the project
- Improper timing

These factors are true for countries like India, where companies are trying to develop HR analytics Capability. The framework to implement an integrated talent management metric or a HR business driver analytics requires the usage of advanced statistical tools beyond the usual univariate statistical tools (means, quartiles and percentiles). Dooren in his findings questioned the objectives of using HR analytics in a company beyond its basic usages when more than 73.6% of the surveyed organizations admitted of having capability to utilize only the basic univariate statistical tools. His finding suggests that the major impediment in developing HR analytics capabilities is the perceived skill gap in the industry to analyse data using standard research methods. (Dr. P. Raghunadha Reddy, P. Lakshmikeerthi, 2017)

#### **STATISTICS & MODELING USES IN HR ANALYTICS**

Namely is the leading HR platform for mid-sized companies. They announced Namely Analytics which are new analytics tool that provides HR teams with the data needed to make strategic people decisions.

With 71% of companies rating HR analytics as a high priority, Namely designed Namely Analytics to tackle the challenges so prevalent in growing companies--such as how to attract and keep great talent, how to maintain

culture as organizations grow, and how to offer fair compensation.

Namely is used by over 900 clients with nearly 150,000 employees globally (PR Newswire, 2017)

**DIFFERENT KIND OF EMERGING ANALYTICS WHICH WILL BE HELPFUL FOR HR**

**Text Analytics**

Text analytics, also called text mining or opinion mining comprises data analytics techniques that extract rich, meaningful structured data from largely unstructured data in order to inform strategic decision making, discern customer sentiment about products, services, events, extract competitor information, organization of enormous amounts of data, and ultimately suggest predictive models to facilitate business agility.

80% of data today with HR is unstructured, and a large part of this data is in text format. Organizations can gather, store and mine this data for smarter decision-making. The data is generally in the form of tweets, e-mails, and surveys. It is difficult for an organization to gather insights from such data in the absence of advanced analytics.

**Video Analytics**

Video analytics, digitally analyzes video feeds using algorithms to monitor, analyze and manage large volumes of data. The analytics can be real-time, or retroactive, where events that have already occurred are analyzed. By this we can understand the equation shared in between the departments and also within the departments. This can in turn help to understand the relationship between people in the organization on real time basis and resolve conflict if any. This can be used for Team fit analysis

**Emotion Analytics**

Emotional analytics involves analyzing the gamut of human moods, sentiments, attitudes and perceptions via a range of tools such as text, image, video and speech. Emotion analytics can be based on facial expression or analysis of speech. Emotion analytics records and analyzes a person’s facial and/or verbal cues to identify moods such as happiness, anger, sadness, fear, disgust and surprise. This can be helpful while the post appraisal interview with the superior, in grievance interview & exit interview. By doing this HR can analyses the pattern of behavior of employees and react in particular manner with the employee to get the best out of him. (Frost & Sullivan, 2017)

**SUGGESTIONS**

**A new concept of “Virtual HR person” should be adopted**

In “Virtual HR person” a device which can monitor your movement, voice modulation, pitch, heart rate and temper can intimate you in advance that you have to stop what you are doing or else you will fall into trouble or a fight at work place, “Increased stress level please take a break”. A “Virtual HR person” can be a device like your mobile phone or a watch at workplace ‘BO’Ts’ for short listing CVs at workplace

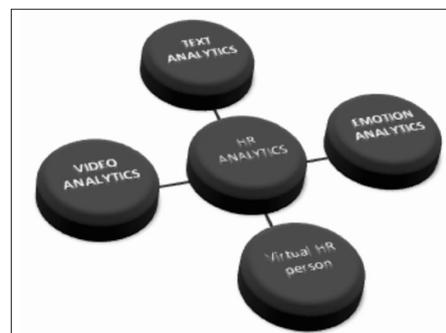
**CONCLUSION**

The business world today is more specific in optimistic utilization of resources. As Human resources are the prime valued sources of any organization, more attention needs to be paid on this. All important decisions have be primarily evidence based. This evidence based approach in business demands for HR Analytics. HR Analytics is not only driving best HR decisions with accurate evidence, but also provoking organizations to maintain adequate quality data for justifying ROI in HR Investments. HR analytics is developing into a ‘must have capability’, which will ensure HR’s future as a strategic management function.

It is evident that the HR function is lagging behind other functional areas of management in the adoption of analytics technology and in the analysis of big data.

Many in the HR profession do not understand analytics or big data, while analytics teams do not understand HR. There is a huge gap in knowing the HRA and practically implementing it in the organization for strategic decision making. Here the HR department is lacking behind. If given proper training and education this gap can be bridged. In this scenario, Academics could play a constructive role in these developments, but could also do more to elucidate the praxis of strategic HR analytics. A different approach to HR analytics is needed, which starts with the question of how HR data can be used to create, capture, leverage and protect value, then seeks to develop answers to these questions through more advanced forms of longitudinal multivariate modeling. However, unless HR professionals upgrade their skills and knowledge to become champions of this new approach, the existing forms of HR analytics are likely to seal the exclusion of HR from strategic, board-level influence while

Figure: 6



Bots can be a software, dashboard or technology that has predetermined fed program to sort the CVs according to the job description.

doing little to benefit organizations and actively damaging the interests of employees. Technology is here to help HR professionals, to ease their work and give relief from hardship. This won't result into loss of credibility of human touch, because human touch is always needed. At the end of the day it is human who has to analyze the data sorted by data analytics and take appropriate decisions on it. Also to analyze the data HR professionals should acquire the skills as excellent analysts or else one wrong decision taken can break the organization apart.

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