

Application of Big Data Analysis in Recruitment and Training & Development



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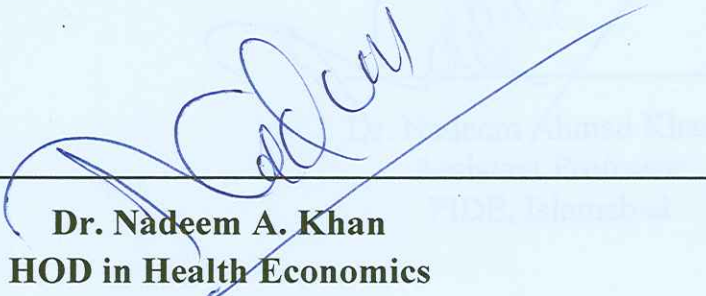
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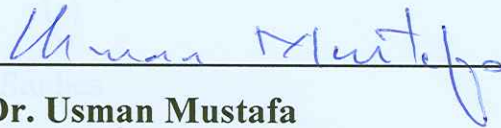
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A Post Graduate Thesis Submitted to the Department of Business Studies as the fulfillment of the requirement for the award of Degree “Master of Business Administration (MBA)”.

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Declaration

I hereby declare that the research submitted to R&D Department by me is my own original work. I am aware of the fact that in case my work is found to be plagiarized, R&D has the full authority to cancel my research work and I am liable to penal action.

Student Name: Muhammad Junaid Kamal

Dedications

Every challenging work needs self-efforts as well as guidance of elders especially those who are very close to our heart. My humble effort I dedicate to my sweet and loving Parents, Whose affection, love, encouragement and prays day and night make me able to get such success and honor, Along with all hard working and respected Teachers For advice and guidance which let me to complete this research work Last but not the least; I dedicate this research work to My friends Their company acted like an educational consortium for me.

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Abstract

The current study analyzes the application of big data analysis in recruitment and training and development in telecommunication sector of Pakistan. It sheds light on the implication of the use of big data analysis for devising evidence based decision in recruitment, training and development and other HRM issues. The present research was a qualitative study in order to get an in-depth understanding of the entire phenomenon. Data was collected in form of interviews from HR Managers working in four major telecom companies of Pakistan including Ufone, Mobilink, Zong, and Telenor. Thematic analysis was used to analyze interview data which led to emergence of two major themes entitled big data analysis in recruitment and big data analysis in training and development. First theme comprised of five sub themes including big data analysis in recruitment decision, big data analysis benefits in recruitment, need of big data analysis in future recruitment, increase in talent acquisition by big data, and big data challenges for recruitment. Second major theme comprised of four sub themes namely; usage of previous training and development records, determining training needs, contribution to the employee training process, as well as measuring the effectiveness of training models. It is further suggested that organizations should use big data with improved software to enhance their performance and get competitive edge over their competitors. Limitations of the study were also discussed.

Key Words: Big Data Analysis, Recruitment, Training & Development, Pakistan

Chapter I

Introduction

Mankind has been making a constant flow of data since the date of birth. Data can be said to exist in each part of our work and life. Recently business of different backgrounds have concentrated on the huge data mining and application, which reveal that the era of Big Data has come. This pattern has coordinated into each work of big business administration, including human resource management, recruitment and training and development. HRM necessities to confront an variety of reports, and vast number of faculty resumes. Just relying upon these conventional data administration frameworks, it is hard for HR to anticipate future human resources modules practices, if HRM could refer to the Big Data reasoning and keep on exploring Big Data administration, human resource management would be more exact, effective and goal (LaValle et al. 2011).

Now what is Big Data we spoke of earlier? Big Data is basically a term which is used for all type of digital data collected from all sort of sources. Challenges faced here are analysis, capture, search, sharing, storage, transfer, visualization, and information privacy. The term implies the use of advanced and innovative techniques to draw values from data and occasionally to some specific set of data. Another standpoint given in this regard is that this term is used to interpret huge amount of structured, semi-structured and unstructured data that is important enough to be explored for information. But, the term big data is not meant to highlight any particular amount of data specifically rather the term is used to show petabytes and Exabyte of data.

In these recent times, Human Resource (HR) practitioners of global economy must be set to meet the substantial challenges and expectations posed by the continuing gathering of data, the examining of it to become information leading to knowledge. Using of the knowledge gathered earlier for the wise decisions to be made in HR functions like recruitment and training and development and performance appraisal. Big Data has great bearing on the practitioners of HR for the roles, goals and activities they perform is

immense in how their function is generating and then adding value for the effective recruitment and training and development of the employees of an organization.

The instance of what is meant is when an organization is brought into existence with a view to fulfill a particular mission or purpose but cannot be realized unless the organization explores and selects the best possible employee with the right skills, knowledge and aptitudes (KSAs) for each job or position identified. Therefore, an organization should design and implement a proper information system so that the best suitable employees could be connected for the realization of its desired goals and objectives. This is why HR practitioners should strive to find opportunities to make appreciation and implementation into the strategic, tactical and operational planning of the organization, and practitioners should bear this information in mind while advertising for the vacant positions. HR practitioners have been found playing the main role in providing support in designing job specifications, placing the correct advertisements, executing the selection and interviewing process, signing employment contracts with job descriptions and inducting the newly appointed employees. These activities are generally performed by HR consultants on behalf of the organization in relatively small organizations. Similarly, advices are borrowed from these consultants on the remuneration scale and level which will fit the employee the best.

The employee's skills and expertise as well as collected data play a huge role in this decision. Access to big data has been provided to HR practitioners in Pakistan and its use. Therefore by using big data analysis they can add value in organizations to be successful. The employers' and HR practitioners' roles and activities have seen tremendous changes over the years and this study strives to throw more light on the utilization of big data analysis in recruitment and training and development. In this paper two closely related themes are discussed: Big data analysis in recruitment and also in training and development.

1.1. Problem Statement:

Newness of the topic compels to the research problem so the problem lies on a point for the researcher to prove why big data analysis need in HR practices. In a modern business environment success exclusively depends on the skills of the human resources for the achievement of the success of an organization. Many public and private organizations have remained seriously concerned about the recruiting and training and development and it still needs attention. Attaining maximum performance has always been a motive of the organizations through appealing best possible human resource and also to make sure to have modern selection practices and training and development practices. The research problem leads the focus of the researcher understand how Big Data is involved in the recruitment and training and Development by HR practitioners in Pakistan telecom organizations. The study pinpointed and analyzed the application of big data in recruitment and training and development practices in telecommunication sector of Pakistan.

1.2. Significance of the study:

This research is first study of big data analysis in recruitment and training and development in telecommunication sector of Pakistan. In telecommunication sector it has practical implication that how big data analysis variable may affect recruitment and training and development in telecom organizations in Pakistan; and it will be helpful to recruitment, training and development decisions. The use of big data analysis and its relationship to HRM in Pakistan is an area that is currently under-researched. This research will provide conventions found in HRM studies about big data analysis in recruitment and training and development.

1.3. Objective of the Research:

The thesis objective is to study application of big data analysis in recruitment and training and development. The aim is to increase understanding on big data analysis implementation in HR. there are many past studies which are done in Pakistan among HR specialists role, competencies, skill, knowledge. The vital objective of this report is to

define the level to which the current role of the HRM department is in using big data analysis to achieve their Recruitment and training & development goals.

- To study the big data impact on recruitment
- To study the big data application in training

1.4. Research Question:

- What is the impact of big data on recruitment?
- What is the impact of big data on training and development?

1.5. Limitation of Research:

The present review has various limitations. One is that the examination concentrates on Telecommunication area, focusing on a little number of close to five associations in Islamabad Pakistan. Access to these organizations was gained by researcher personal contacts. The study is limited to exploring the Big Data analysis in recruitment and training and development within the context of the Pakistan telecommunication sector.

These are following limitations of the study:

- All findings depend on the data gave by the respondents
- The extent of the review is confined to the investigation of big data practices in HR telecom sector of Pakistan. In that capacity, the findings may change if the review were to be connected to a sectors.

Chapter. II

Literature Review

2.1. Big Data:

In the words of LaValle et al. (2011) Today organizations don't only need what to know and its reason but also to know what are going to be the future trends. According to Chen et al. (2012) the organizations are adopting the 3Ws which resulted in the increase of data generation and collection.

The definition of big data is under discussion by the scholars but they agreed on a fact that big data has 4 features; value, volume, velocity and variety (Jian & JIANG, 2013).

Volume:

One of the feature of Big Data is on large scale. There are certain reasons why big data is hot topic. First of all, the widespread use of internet made data acquisition and sharing more easy and fast. The second reason is that every kind of sensor has increased the capacity of data acquisition that resulted in more real and more comprehensive data. Furthermore, the trend has shifted from the individual sample data processing to analyze the overall data processing.

Variety:

The big data is very complex in nature. Previously, most of the data we had was structured and the data processing methods were fixed. With the passage of time the developments in the internet the acquisition of the data become more complex and unstructured one.

Velocity:

As the huge development of information gathering and distribution technology, the data volume is growing with fast pace and new data is emerging every second. This fast growing size of data needs faster and faster data processing speed. As the faster data

processing speed can only make it possible to effectively utilize the data. If it is not achieved it will become a burden and impossible. Further, the passage of time reduces the value of the data. It is also possible if the data is not processed well it will also lose its value making big data of no sense.

Value:

The introduction of unstructured information on large scale require to keep all the details of the data which introduces a lot of useless information and even in some instances a false information. Comparatively the unstructured data has a low value density. According to Jian guang sometimes the insignificant detail data may cause a huge impact (Jian & JIANG, 2013).

As defined by Boyd & Crawford (2012)Some organizations and employees look big data as an opportunity for the purpose of advertising, revitalize their offers or/ and compare the market. According to Herodotou et al. (2011) says as a matter of fact the ability to make timely big data analysis is a key ingredient for successful organizations. In the words of Cuzzocrea et al. (2011) big data refers to huge amount of data in unstructured form by the high performance applications. According to Madden (2012) argues that big data indicates that the data size is enormous, too fast or hard for procedure from current tools. According to Boyd & Crawford (2012) big data is a technical, cultural and scholarly phenomenon that established on the technology, analysis and methodology.

According to McAfee & Brynjolfsson (2012) there are many opportunities of big data and these are recognized broadly. He provided a ‘getting started’ guide for implementing big data in an organization.

- First of all create a team and test department with open minded and data friendly manager.
- Second step is to begin a brainstorming session and identify and select 5 opportunities that can be solved with big data within 5 weeks.
- Innovation process with the steps of experimentation, measurement, sharing and replication initiated.

- At the end, an organization should send challenges related to the big data to the 3rd party.

According to Labrinidis & Jagadish (2102) says big data has many advantages. For instance, the identification of big data has led to a growing enthusiasm for the decision making based on the data which is also known as evidence based decision making.

McAfee & Brynjolfsson (2012) defined organizations characterizing themselves as data driven performs well on objective financial and operational key figures. LaValle et al. (2011) says organizations that identifies big data and analytics as a differentiation strategy are twice as likely to be a top performer in the market. In the words of McAfee & Brynjolfsson (2012) Big Data can also revolutionize management, because an important aspect of Big Data is the impact it has on how decisions are made and who makes these decisions. Thus, implementing Big Data and data driven decisions could already lead to a performance boost for that particular organization.

2.2. Big Data and Recruitment:

The commonly purpose of recruitment is to give the organization a pool of possibly qualified employment candidates. The better the quality of human asset attract towards an organization, the best value of applicants the organization have, in light of the fact that organization will choose staffs from the individuals who were attracted in (Gamage 2014). In a similar way, Henry and Temtime (2010) took recruitment as the admission purpose of employment into an organization and the way an organization must take after from that point keeping in mind the end goal to ensure that they have attracted the perfect people for their culture and vibes so that the vital objectives will be accomplished.

Boxall, Purcell and Wright (2007) highlight five distinct inquiries an association needs to reply to have a compelling recruitment technique so as to seek after its survival and achievement. Those inquiries are "Whom to enroll?", "Where to select?", "What recruitment sources to utilize?", "When to enlist?" what's more, "What message to convey?" The thought of viability in this review identifies with the way by which

organizations executes its work strategies. The example is to get it regardless of whether such approaches are connected suitably in the way they have been planned.

As indicated by Armstrong (2006) the point is to acquire, at the very least cost, the quantity of appropriate and qualified candidate to fulfill the requirements of the organization. The organization invites candidates by method for recognizing, assessing and utilizing the most proper source of candidates. El-Kot and Leat (2008) perception is that recruitment starts with promoting existing opportunities and recruitment is the way toward finding and endeavoring to invite job applicants who are appropriately qualified and in this manner fit for filling opening in employment positions efficiently.

Recruitment is center elements of HRM for a business organization. This is term that refer to the practices attracting the right candidate for organization. In the words of Gamage (2014) says that Quality of human resource is depends on the effective recruitment. According to Ofori and Aryeetey (2011) in this manner, the general point of recruitment inside the association is to acquire the right number of representatives that are required to fulfill the goals and objective of the association, at minimal cost. Recruitment include those practices and exercises did by the association with the main role of recognizing and drawing in potential Applicants (Breaugh and Starke, 2000). Barney & Wright (1998) put an emphasis in order to gain competitive advantage the organization basics is to attract and retain high quality people.

The essential assignment of HR department is recruiting talent because now a day's competition between organizations is the competition of talent. Old style of recruitment follows the following steps: department head request for talent. Second recruitment letter will be displayed on the company portal. Last when the applicant found the message were sent to right candidate to submit their resume (Huang and Xiang, 2013).

Organizations are mixing up the recruitment process into the social networks. This helps them to gather information about the candidates, even during days when they are not recruiting. This continuous process of data gathering and analysis through social networks, made the process of recruitment more efficient and valuable. The information through mentioned sources can be like personal clips, photos, moral values, homing

conditions, skills and abilities and much more. Such a close insight about the candidates make the information more clear about them, and this can be considered as base for the use of BIG DATA in the process of recruitment. (Dong Ying et al. 2014)

2.3. Big Data in Training & Development:

Recruiting the right person doesn't end the process of HRM, but the recruited personnel also become part of continuous process of organization's value addition, and this needs training and development to be able to perform as per expectations. Therefore, HRD is considered to be important part of HRM (Weil & Woodall 2005).

Guest (1987) articulated that organizations need to formulate their HRD policies according to the requirements of their future goals. This can be done through checking their performance over the time and again or even employees can be asked to input about training needs to improve their performance.

Weil and Woodall (2005) explored that the process of training and development is a complete plan to modify the behavior of employees with the help of different activities. This will result in achieving higher level of knowledge, ability to perform better and competencies to work as efficient as possible.

The researchers contribute, time and again, about the importance of training in better performance of employees. But the process of training and development is not only for the better performance of employees, it is basically contributing in the process of the success of the organization overall. That is the reason why the process of training and development is becoming important for organization to complete in the intensive situation. In addition to above Breadwell et al. (2004) added the technological advancement in organizations is increasing the need of training in organizations to be in the race during this rapidly changing technological era.

Cole (2001) listed the benefits of training in improving the knowledge and increasing skills needed for better performance. These improvements can be for short or long term depending upon the requirement and plans of the particular organization. The benefits are postulated as follows:

- Improved knowledge and skills also contribute in motivating and building inner confidence in performing the task.
- Better skills also lower the cost, by minimizing the delays and wastes.
- Reduces absenteeism and labor turnover.
- Smoothing the process of adopting required change.
- Improves skills and ability to perform better, which leads increased pay and promotions and ultimately employee satisfaction.
- Better working environment.

He (2013) mentioned the drawbacks of traditional processes of training and development and wastes of organization's time and resources. He articulated that, a traditional method provides a format of old classroom environment and traditional teacher student relationship. He emphasized on the need of advanced and new interactive ways to be adopted in this process.

According to Tian (2014) the process of training important in exploring the hidden skills and abilities, which may not even known by the employees themselves. This will help organizations to take competitive edge to their competitors and increase profitability as resultant.

Increased importance of use of data in today's organizations is highlighting the need of data to be used in the process of training and development. This puts foundation stone for the need and use of BIG DATA to solve the need of organizational issues related to human resource. Networking and development of professional training courses increases the improvement of organization. This starts a continuous process with evaluating the performance from time to time and getting feedbacks from employees and organization. The data gathered can be used in planning and improvement of future trainings for same or even for other organizations. This will also give as sense of responsibility to employees to provide feedback to get even more improved training in future. This can be done with the help of software to predict the performance of employees (He, 2013).

Chapter. III

Methodology

Qualitative research approach used for this study this chapter seeks to legitimize the selection of qualitative research strategy for the current study. The main aim of this research was to determine the Application of big data analysis in recruitment and training and development in telecommunication sector of Pakistan.

In the words of Bogdan & Biklen (2003) In general all, qualitative research techniques are particularly valuable in finding the meaning that individuals provide for occasions they encounter. According to Patton (1987) The Questions of Qualitative study often begin with what or how, so that the scholar can gain detailed know how about the related topic.

3.1. Data Collection:

Both the primary and secondary data is important for any research. For primary data collection there are several techniques such as questionnaire, indirect oral interviews, direct observation and surveys. For conducting current study, primary data is gathered through developing a questionnaire and conducting interviews from the target participants directly. For secondary data collected from related articles, books and reports. For data collection of this study detailed interviews are conducted by HR experts in telecommunication sector of Pakistan Ufone, Mobilink, Zong and Telenor. The detailed interviews questions and their answers are given in annexure.

3.2. Population and Sample:

The study is conducted in Islamabad the Capital of Pakistan. The targeted population is telecommunication sector of Pakistan. As mention in “Table 1” the detail of interviewer organization and designation. The sample size is four because there are four major telecom sector in Pakistan Ufone, Telenor, Zong and Mobilink.

Respondents	Organization	Designation
Nauman Abbasi	Ufone	Recruitment Manager
Kinza Iqbal	Mobilink	Executive OD & Talent Human Resources
Sehr Babar	Telenor	Assistant Manager Employee Branding
Sahibzada Junaid	Zong	Senior HR Executive

Table 1 Interviewer Detail

3.3. Sampling Techniques:

In Qualitative studies generally the sample are purposive.it means that the targeted members can generate very supportive data for the study and for the purpose they are selected.

3.4. Data Collection Tool:

Interviews method is used for the collection of data for which open ended questions are formulated.

3.5. Analysis Techniques:

Thematic analysis is used to conduct analysis. The data collected from Open questions asked from the respondent and interviews were recorded and noted in transcript form. In start initial coding used. It comprise finding the theme in the interview transcript and then analyzing it. Transcripts were examined utilizing thematic analysis. According to Braun & Clarke (2006) thematic analysis is a qualitative technique used for classifying, evaluating by defining theme from the data.

For the detail Big Data Analysis in Recruitment of theme sub theme and exemplary initial coding mention in “Table 2” and for the detail of Big Data Analysis in Training &Development theme sub theme and exemplary initial coding mention in “Table 3”From the transcript we identify the theme sub theme and exemplary initial coding.

Theme	Sub-Theme	Exemplary of Initial Coding
Big Data Analysis in Recruitment	I. Big Data Analysis In Recruitment Decision	<ul style="list-style-type: none"> • Cost and Benefit • Effective recruitment • organization objectives • Effective recruitment decisions
	II. Big data analysis Benefits In Recruitment	<ul style="list-style-type: none"> • Identification of Recruitment sources • Attracting right talent • Cost reduction • Quality hire • Right person for the job
	III. Need of big data analysis in Future Recruitment	<ul style="list-style-type: none"> • Recruitment problem solution • Identification of the skills • Forecasting • Future decisions retention
	IV. Increase in Talent Acquisition By big data	<ul style="list-style-type: none"> • Effective talent acquisition • Competitive advantage in war of talent
	V. Big data challenge for recruitment	<ul style="list-style-type: none"> • Unable to manage the Data • Shortage of the data scientists

Table 2 Exemplary Initial Coding Theme and Sub-Theme of the Data

Theme	Sub-Theme	Exemplary of Initial Coding
Big Data Analysis in Training & Development	1. use previous Training and development experiences	<ul style="list-style-type: none"> • Motives of the training • Previous training track record • Knowledge management
	2. determining training needs	<ul style="list-style-type: none"> • Forecasting training need • Identify the training which is needed • Effective training
	3. contribute to the employee training process	<ul style="list-style-type: none"> • TNA process • Skill gap fulfillment
	4. Measuring the effectiveness of training models	<ul style="list-style-type: none"> • Feedback mechanism • Performance appraisal • Training ROI • Effective training

Table 3 Exemplary Initial Coding Theme and Sub-Theme of the Data

Chapter. IV

Data Analysis and Results

The purpose of this study is to find out the using of big data analysis in telecommunication sector of Pakistan where it is beneficial or not and what are the impact of big data analysis in recruitment and training and development. As in “Figure 1” it will be noted down that what are benefits of using big data and what are the problem using big data analysis in recruitment and training and development. The qualitative mechanism like specialist’s detailed interviews are used for the data collection. After analyzing the responses of specialists, the repeating patterns are affirmed as significant result of study. Here in “figure 1” we can see the data analysis in recruitment.

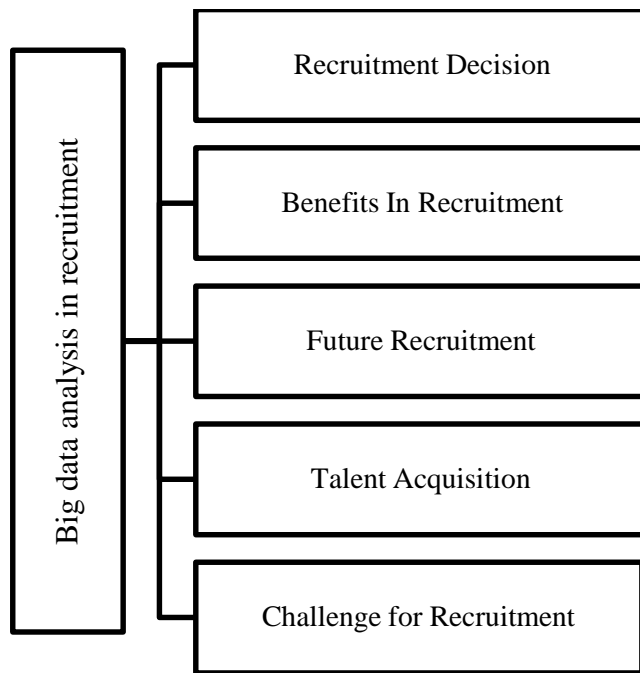


Figure 1 Big data Analysis Results in recruitment

4.1. Big Data Analysis in Recruitment Decision:

As we know a decision made between option strategies in a circumstance of uncertainty. In big data Decision is an Administration strategy in which some tools are used for data mining to extract the use able or the value able data. The goal of a decision is to find the most profitable option in light of the current situation. The way of thinking of selecting a sensible decision from the accessible alternatives. When attempting to settle on a decent choice, a man must weigh the positives and negatives of every choice, and consider every one of the choices. For powerful basic leadership, a man must have the capacity to estimate the result of every choice also, and in light of every one of these things, figure out which choice is the best for that specific circumstance. Data analysis is necessary for making the right decision in recruitment according to our respondent he says “by the use of data analysis we can see the cost and benefits of our decision we use data in decision making during the process of recruitment. I just give you a example of today I was working on cost benefit analysis of LinkedIn. Basically we have a corporate account recruiter account on LinkedIn that is a huge cost I was just preparing the report that either the usage of this LinkedIn account in further recruitment is any benefit or not this is the example of data analysis we use in decision making”.

For generating the right pool of candidate the data analysis is very necessary we can find from which university we can find the right talent or from which source we can find the right candidate so data analysis is very necessary for all these decision. The view of respondent about the source of generating pool is that now a “days recruitment is developing the hire able pool of candidate for developing that pool we do need some data co intrenence I see that from which university I am get getting a better pool from which in work what part of year I am getting the relevant profile from which medium I am getting through employee referral. So yes for every decision of recruitment little or big we do consult our data past trends and analysis”. So by the use of big data analysis in the process of recruitment is very beneficial in terms of cost. Moreover with the help of big data we can generate a healthy pool of candidates which leads to effective recruitment. As recruitment of the right candidate for the right job at the right time means achieving

the organization's objectives. The big data can be utilized with the help of data scientists for making the effective recruitment decisions.

4.2. Big data analysis Benefits In Recruitment:

Recruitment is the way toward finding and procuring the best-qualified person from inside or outside of an association for an employment opportunity, in an auspicious way. So if a organization hire the right candidate which meet the organization objective it will become the competitive edge on other organization. So it all become real when organization used big data analysis in the process of recruitment. When a recruitment done by data analysis by an association when they recruit the right talent and the person make values in organization profit so he will become a very suspicious employee for the organization and organization don't want to leave that person. So this is competitive advantage on others. When we use big data analysis in recruitment procedure, be it in form of a job board, social enlisting stage, or meeting innovation for the most part highlights the diminishment of recruitment cost as an essential advantage. According to one of our respondent "Yes lot of benefits by using data analysis in recruitment by the data analysis cost of recruitment reduce and also by using data analysis we hire the quality person in short time". There are other lot of benefits of using big data analysis in recruitment it will be beneficial for sources of recruitment i.e. universities, electronic media etc. big data also helps attracting the right talent to meet the organization requirements. This will further leads to cost reduction of the recruitment process keeping in view the quality hire from the pool of candidate with best skills and competencies who meet the requirement. As a result organization succeed in hiring right person for the right job at the right place.

4.3. Need of big data analysis in Future Recruitment:

Big data analysis become necessary for organizations because world is becoming data driven. What's sure is that huge data is the eventual fate of occupation for recruitment and improvement, and seeing how to understand it will be basic to an organization's prosperity. Nowadays, huge information is fasting developing organizations locate their ideal applicants.so big data analysis plays vital role in future for employing right

applicants. According to our respondent when I ask about the use of big data analysis use in future his response was Definitely yes those companies which are not using data analysis they should to use data analysis. Because to know how many applicant apply for position last year. Example last week we are doing a analysis female applicant number increase or decrease so it shows that female applicants decrease significantly now we get a problem that why female applicants are not applying so if we don't know the problem how can we find the solution so data analysis is necessary for every organization. So for all solution in future big data is becoming essential thing over all use of big data analysis in future have benefits that the future is all about big data. Organizations that exploit the big data will compete the others and it will be their recruitment problem solution. As the dig data gives the statistics of the applicants that will be useful in making the forecast for the future required skill sets and trends. Moreover, it will also help in making the future decisions retention that will give the competitive edge to the organizations.

4.4. Increase in Talent Acquisition By big data:

Use of big data analysis in talent acquisition is necessary to find out the right talent. An organization endeavors to enlist, keep, and prepare the most talented and most elevated quality staff individuals that they can discover, bear the cost of and contract. Talent administration gives business chiefs a particularly vital part to play in recruiting, creating and holding attractive staff individuals. As one of respondent view about talent acquisition is “Yes if you don't have data you don't know the talent acquisition situation what are the problems where need to work where need improvement and where need to invest if you want to make talent acquisition effective you need data analysis. Example if I have a target to fill a position with in fifteen days if I don't have the analysis I don't know how I will full fill the requirement for the position so data analysis is necessary”. Respondents stress on the need that organization should now shift towards the big data as it results in the effective talent acquisition. The success of any organization depends on the best talent they hire, big data will leads to competitive advantage in the war of talent. It will help the organization for making timely acquisition. They also explained that there are many advantages of electronic media that will help searching the right talent.

4.5. Big data challenge for recruitment:

Big data can become challenge if we are unable to find right information. One of the respondent view about big data challenge is “As the amount of data increasing very fast beyond our knowledge and capacity, we face often challenge in capturing, storing, sharing, transferring, analyzing and visualizing all those unstructured, structured and semi structured data”. The greatest challenge for using big data, according to the respondents, is the inability to manage the data as it is a new trend in Pakistan and still much work is needed in this field. Further there is a shortage of the data scientists hence, lack of expertise utilizing the data. As said earlier the trend is new and fresh so data scientists doesn’t use data mining tools.

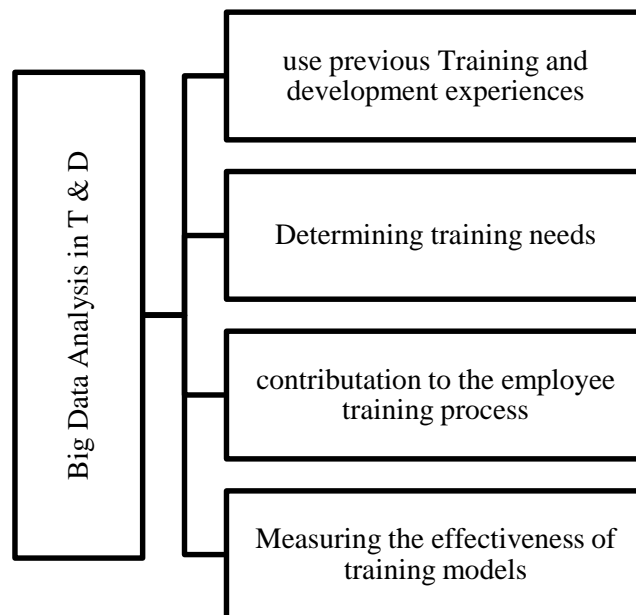


Figure 2 Big Data Analysis in T & D Results

4.6. Use previous Training and development experiences:

The respondents replied yes they use the previous T&D experiences to get the motives of the training by looking the track record. This is done through the process of knowledge management. Training is provided to the trainees to transfer the relevant skills through

new ways and methods of training. It also tells us what training is given and what will be given in the future.

4.7. Determining training needs:

Big data interprets and identify the training that is needed by forecasting. When they forecast a specific training they effectively plan and deliver that training. The previous training provided and their impact on the overall return on investment is seen and then decided which training was successful in both terms of content and return.

4.8. Contribution to the employee training process:

Yes according to the respondents there are major contributions of the big data in training process. Firstly, training need analysis requires the big data. It also provide the new and refine methods of customized training according to the individuals by looking on the previous training track record. Moreover, they can find the gap of required skill set and the current skill set and also fulfil this gap by giving the training.

4.9. Measuring the effectiveness of training models:

Yes all the respondents depict that the data analysis is very necessary to measure the effectiveness of the training. It provides the feedback mechanism what should be added in the training content and what should be excluded. It also helps to evaluate the performance of the employees and award them with appraisals based on their contribution. Moreover, the investment on training was beneficial or not. If it was yes then it was an effective training.

Chapter. V

Discussion

According to All respondent and the literature I read is that big data analysis becoming vital part in any decision making. We can make accurate decision in which low chances of failure. So big data is very helpful to make accurate decision it will give ability to HR by using the big data analysis to make evidence based and more accurate decisions. That generates significant competitive advantage. The decision which are made by using data analysis will implement business strategy efficiently. Big data analysis if we talk about recruitment is very help full in effective recruitment. So now a days the use of big data is necessary in the competitive market to not only attract the best pool of the candidates but to hire them and retain them. Market is becoming more and more data driven and using the data analysis tools and techniques in their recruitment process. World become data driven and in the war of right talent data analysis is necessary One feature that marks talent acquisition so perfect is that organizations now seeing talent as a serious component of the organization's success. To find out the right talent the organizations uses big data analysis. Data can demonstrate bosses precisely which sources have the best probability for producing the stream of the particular sorts of applicants they require. Data can be utilized to distinguish both which sources will be best and what the normal volume of candidate flow will be.

In this time of competition organizations want to generate pool of candidate in minimal cost so it's become real by the use of big data analysis. Big Data can help HR catch and hire the correct Applicant for every position in the organization quicker and more cost-effectively. They will hire the candidates with required skill set and retain them it will save the cost of rehiring the employees if the wrong person was hired. So the use of big data analysis also helpful in hiring right person in short time. The data analysis is a time efficient technique in a sense it provides the full fledge picture of the current status of the organization along with the forecast to show where the trend is going in the future. This is an era of technology, the organization can gather pool of candidates through electronic media without consuming much time and cost.

Big data analysis is very help full in corporate trainings for determining the training needs. Big data can be used for corporate training, it is important to understand how it can be used in a corporate training realm. For instance, it can help to identify learning needs of the individual employees, teams and departments. With the help of this, individual skills that are needed for improvement can be determined, and this can be useful in determining which training content to cover. Further, the big data can be used to determine the best educational platform to utilize, i.e. an online course, a classroom setting or a mix of both approaches. The delivery of the information, i.e. in a hard copy or a verbal format, can also be determined. The employees' schedule, skills and needs should be taken into consideration while making a final decision about corporate training. Word is becoming innovative so by the use of big data analysis organization can become efficient. Corporate education is not a first-time experience, rather it requires continuous effort with improvements. Big data enables this type of ongoing experience for corporate training by analyzing the previous experiences that the company has used. For example, it gives information regarding how employees interacted with each other and benefited from content to determine which were most as well as least effective. As a matter of fact, some are cloud-based platforms that provide with real-time feedback for instant information and refined corporate training.

By the use of big data analysis organization can anticipate the future trends. Big data and sustainability are two business trends that are focused intently on optimizing operational productivity and increasing profits. By providing enough training for employees, you can secure the positive results that you need, and big data is critical in this process because it helps you align training programs with real-time analysis of training efforts.

5.1. Conclusion:

Results suggest that the use of big data analysis in recruitment and training and development in the accomplishments of the organization to get introduced. Now a day's big data analysis seems more constant method for making decisions. When using data analysis of data which is collected in HRM department in term of resume, job boards, and employee data bases is more effective to make evidence based decision for hiring the

right talent in short time and gaining the comparative advantage in the war of talent. According to the respondents it has very significant success in future. It is very difficult for the organization to survive without effective recruitment and training and development. The collective Organizations need to plan for the future because the reality is that strategic planning is done to ensure success in the organization. Similarly, it is difficult for the organization to be successful without using Big Data analysis in its functions, decision making process, recruitment process and training and development process. It can be said that the employers and HR practitioners are readily aware of the employee attitudes in the work premises and by using data analysis they get a better understanding of the importance of employee attitudes on the organizational performance.

The importance of using big data analysis in HR and their esteem expansion in an association is of the considerable significance for achievement. Training and development assume a key part in the achievement of any association and the businesses.

Big Data requires broad arrangement before its use into a business. HR divisions must be prepared in the new instrument and acknowledge it as giving new components to their posts. After the integration into business, huge information will open new patterns for HR capacities, which can be situated in the heart of the advanced upset of the business.

5.2. Implication For future Research:

During the research work, according to our survey which includes 4 companies, lot of reports and articles related to big data. There are number of researches have been seen carried out in the fields of management especially in HR since many years. It has been confirmed that Data-driven decisions tended to be better decisions in recruitment and training & development. Leaders will either embrace this fact or be replaced by others who do? In sector one by one, it is figured out by the companies how to rivals will be put away by the domain expertise. But, it would be difficult to say that all the winners will be applied big data to transform decision making, the data tells us that's the surest bet. With the increasing amount of data and scope of the Big Data Analysis organizations started working on the Big-Data concept and various type of researches has been conducted on

use of big data in different fields. The following questions has been emerged from the backdrop of evidences and observations made above in the paper. How big-data is influencing the recruitment and training and development in telecommunication sector of Pakistan.

- In what way big data is implemented especially in workforce analytics, and talent Management, in Pakistani organizations and where it is already applied.
- In what way big data analysis impacts on the activity of motivation and employees efficiency and prudent decisions by the managers?
- What would be the return on investment (ROI) in big data?

In the backgrounds of the above questions many studies can be conducted elsewhere form the interdisciplinary plate-form? Research on Big Data started in the area of computer Science but it is not restricted to this field only. Now a days the term Big Data is used in all fields of study. The world is converting to data driven digital world and Big Data analytics plays a dynamic role in it.

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Annexure

Questionnaire

Application of Big Data Analysis in Recruitment and Training & Development in Telecommunication Sector of Pakistan

Section 1

Big Data Analysis and Recruitment	
Q1	Do you use Big Data Analysis in decision making during the process of recruitment?
Q2	What Are the Benefits of Using Data in Recruitment?
Q3	Do you think The Future of Recruitment Lies In Data Analysis if yes then how?
Q4	Do you think Data Increases the Value of the Talent Acquisition and how?
Q5	What are the challenges Using Big data analysis During The Process of Recruitment?

Section 2

Big Data Analysis Use in Training & Development	
Q1	Do you use previous Training and development experiences that the company has used?
Q2	How big data analysis determining training needs?
Q3	How data analysis contribute to the employee training process?
Q4	Do you think data analysis Measuring the effectiveness of training models If yes then how?

Ufone Interview

Respondent: Nouman Abbasi

Section 1: Big Data Analysis and Recruitment

Q.1. Do you use Big Data Analysis in decision making during the process of recruitment?

Yes the short answer of question one is yes: why we use data in decision making during the process of recruitment. I just give you an example of today I was working on cost benefit analysis of LinkedIn. Basically we have a corporate account recruiter account on LinkedIn that is a huge cost I was just preparing the report that either the usage of this LinkedIn account in further recruitment is any benefit or not this is the example of data analysis we use in decision making. We use basically monthly basis quarterly and annually basis different type of data analysis to see which medium is working for us as a recruitment tool. Recruitment is developing the hire able pool of candidate for developing that pool we do need some data competence I see that from which university I am getting a better pool from which in work what part of year I am getting the relevant profile from which medium I am getting through employee referral. So yes for every decision of recruitment little or big we do consult our data past trends and analysis.

Q.2. What Are the Benefits of Using Data in Recruitment?

If we don't use data and analysis in recruitment that would be just like an operational activity like a postmaster is doing in posts. If I am using LinkedIn is it worth enough to invest hundred million in this thing is it worth enough to build own company portal career page is it worth enough to go universities is it worth while to go universities for example my pay is hundred thousand if my one day pay is ten thousand if I spend three hour in university and my three hour pay is three thousand so does it worth three thousand rupees to go into university and comeback.

So yes for everything in recruitment you do need data and if you don't use data analysis and trend analysis so you are just passing days without knowing what happening.

Q.3. Do you think The Future of Recruitment Lies In Data Analysis if yes then how?

Definitely yes those companies which are not using data analysis they should to use data analysis. Because to know how many applicant apply for position last year. Example last week we are doing a analysis female applicant number increase or decrease so it shows that female applicants decrease significantly now we get a problem that why female applicants are not applying so if we don't know the problem how can we find the solution so data analysis is necessary for every organization.

Q.4. Do you think Data Increases the Value of the Talent Acquisition and how?

Yes if you don't have data you don't know the talent acquisition situation what are the problems where need to work where need improvement and where need to invest if you want to make talent acquisition effective you need data analysis. Example if I have a target to fill a position with in fifteen days if I don't have the analysis I don't know how I will full fill the requirement for the position so data analysis is necessary. In every hiring stage I am using data analysis and every step is yielding the data for me on the back end I am doing analysis for that if I am filling the position of talent acquisition manager I see how many profiles applied how many were good how many were not poor how many can we give a backup how many go for next round how many time I took for shortlisting and each and every step of recruitment need data analysis.

Q.5. what are the challenges Using Big data analysis During The Process of Recruitment?

As the amount of data increasing very fast beyond our knowledge and capacity, we face often challenge in capturing, storing, sharing, transferring, analyzing and visualizing all those unstructured, structured and semi structured data.

Section2: Big Data Analysis Use in Training & Development

Q.1. Do you use previous Training and development experiences that the company has used?

Definitely T&D is subjective thing I am talking about soft skills there could be different techniques for training and there could be different approaches for training but more or less the purpose of training is simple that whatever the contents you have the other understanding in the same way so what's being said Is being under stood that's the motive for training is. I share my past experience we do that for instance previously I was working with the (SNL) SB global financial. So there was good training program over there. Recently last month we were in Lahore and we have a training program career guidance management (CGW). So yes we do use that whatever the best practices are.

Q.2. How big data analysis determining training needs?

Very important point because If you don't have data analysis you cannot determine whether a training is needed or not. What happens this every six month you get evaluated for instance line manager rate the performance of employee and supervisor rate the performance then we discuss and set a standard and to reach that standard what we need so data analysis is necessary for this. And we can judge what kind of training is needed if you don't data analysis you cannot train people effectively.

Q.3. How data analysis contribute to the employee training process?

Yes data analysis helps if one department request for training then we will go to the department and we conduct TNA and after that we will conclude what kind of training is needed so we will give the training and after that we will evaluate if there is soft skill training then we will wait for next performance appraisal and we will see line manager and supervisor report they ranked. For hard skills we see is there improvement in reporting the of the department.

Q.4. Do you think data analysis Measuring the effectiveness of training models If yes then how?

Yes there are different techniques and tools that helps to measure the effectiveness of training model and training type even trainer so everything has a feedback mechanism and by using of this feedback mechanism we evaluate the effectiveness of training we have feedback portal Performance management system (PMS) in which all feedback is recorded and by using of this data we make further decision so data analysis is very important to measure the effectiveness of training.

Mobilink interview

Respondents: Kinza

Section 1: Big Data Analysis and Recruitment

Q.1. Do you use Big Data Analysis in decision making during the process of recruitment?

Yes it is very important question during the process of recruitment we use big data analysis in decision making. All the important data that we need we contain within different databases, and it takes a long time to collect and organize all this information. Without this data, we are not able to tell if our recruiting process is working effectively or not.

Q.2. What Are the Benefits of Using Data in Recruitment?

There are lot of benefits of using data analysis in recruitment. The following benefits I want to discuss are attracting the right talent, hiring the right talent needed to meet organization objective. Organization have different job boards account we have career account it helps we do have visibility how many new applicant apply how many visited how many clicks your page has been given from the like last past year what was trends how many people apply those people applied from which geographical area which people called for interview so from these data insight we can recruit the right person.

Q.3. Do you think The Future of Recruitment Lies In Data Analysis if yes then how?

Yes By using data and recruitment history is maintained, future decision can be taken, and if data is collected to the point and conduct analysis in right way. We focus on that which we want to hit And identify the skills in very easy way through data analysis Yes we do this not only on company level but also on country level. Because after five years youth act like a bomb so there is need of data analysis to forecast the job and predict the future on past basis.

Q.4. Do you think Data Increases the Value of the Talent Acquisition and how?

Yes data increase value of talent for this purpose we need data which we collect electronically in term of resume job board's data. So we conduct analysis of that data effectively in this way we can got the best talent in the war of talent and this will our competitive advantage and also our return which we invest on recruitment .we spend on industry .so in this way we find out that how and how much our money is valuable for our organization.

Q.5. what are the challenges Using Big data analysis During The Process of Recruitment?

The shortage of data scientists is becoming a serious challenge for an organization to identify rich data sources, join them with other, potentially incomplete data sources, and clean the data so data Scientists are most important for effective data mining.

Section2: Big Data Analysis Use in Training & Development

Q.1. Do you use previous Training and development experiences that the company has used?

Exactly right, yes we have previous training records and the major benefits of keeping the record of training is that organization already knows that which training is conducted already and which training employees already received. And through this available data analysis we can predict which training has more need to conduct and which employees are eligible for this training session. Otherwise without data it's very difficult to find out that which employees already trained and which are not. And the main issue is that if we don't have previous data previous trainers just enjoy the time. They have no concern why they are learning .because they learn already. They don't know their training session will increase their performance and job.

Q.2. How big data analysis determining training needs?

Exactly right, as we said the benefit of keeping record of data is that organization already knows that which training is conducted already and which are employees already received the training .and now which training has more need to conduct and which employees are eligible for this training session. Otherwise without data it's very difficult to find out that which employees already trained and which are not. And the main issue is those previous trainers just enjoy the time. They have no concern why they are learning .because they learn already. They don't know their training session will increase their performance and job.

Q.3. How data analysis contribute to the employee training process?

Yes we can say big data has lot of contribution in all training process. Yes big data analysis identifies the new talent opportunities. Through the trainings you have to identify a person or employee who is doing well and will be beneficial in future for organization. When you utilize big data in training outcome are very effective because the training content are clear and person give interest in new trainings.

Q.4. Do you think data analysis Measuring the effectiveness of training models If yes then how?

Yes big data analysis has major contribution in effectiveness of training. Yesterday I was working on performance appraisal after the training. So I was using the data to find the person's previous performance and after the training performance and awarded accordingly. All this was possible with the help of data.

Zong Interview:

Respondent: Shabzada Junaid

Section 1: Big Data Analysis and Recruitment

Q.1. Do you use Big Data Analysis in decision making during the process of recruitment?

The answer of this question is yes and it's very important to use data analysis in decision making because through data analysis we can make evidence based decision the right decision for recruitment which meet to thee need of organization objectives. Big data analysis is innovation and to get competitive advantage because through big data analysis we can make right decision chances of success are maximum and the chances of failure minimum.

Q.2. What Are the Benefits of Using Data in Recruitment?

Yes lot of benefits by using data analysis in recruitment by the data analysis cost of recruitment reduce and also by using data analysis we hire the quality person in short time. By availability of vast amount of data and if we analyze this data effectively it's easy to save time to make interview questions and also recruitment marketing we predict where from we can generate the pool of candidate from which skills and competencies person recruit.

Q.3. Do you think The Future of Recruitment Lies In Data Analysis if yes then how?

Of course Yes, future of recruitment lies in data analysis and we also discuss for every decision data analysis is necessary for strong decisions. Our company is spending a good percentage of HR technology funds on big data and analytics to progress the hiring method, retain employees, and make well business decisions.

Q.4. Do you think Data Increases the Value of the Talent Acquisition and how?

Through using big data we found that we can increase talent acquisition with that make sure you planned wisely. As we know time management is an important factor and we it will help us to achieve our task.

Q.5. what are the challenges Using Big data analysis During The Process of Recruitment?

I think the big challenge of how big data is used to handle it's tools and effective data mining ,due to huge increase in the amount of data, new technologies is developed to handle those data but we face challenge in term of data scientist job.

Section2: Big Data Analysis Use in Training & Development

Q.1. Do you use previous Training and development experiences that the company has used?

Definitely yes, without using previous record of T&D we will not be able to know how many training we have conducted and what were the objectives and goals? How many employees have attended these training and when a employee who already attended a training will show less interest so it will not be effective.

Q.2. How big data analysis determining training needs?

Yes, now a days training and development became data driven. Through big data we can forecast training needs. Big data is necessary for T&D. Through big data, organizations can see that how trainings can be most successful on an individual level that how these trainings can be beneficial for the employees learning and development, which will, in the end, increase business performance.

Q.3. How data analysis contribute to the employee training process?

Yes the data analysis contribute in the training of employees. We analyze the previous given trainings through videos and its contents. The willingness of the employees

towards specific training and their rate of participation in the training all was done through the data interpretation.

Q.4. Do you think data analysis Measuring the effectiveness of training models If yes then how?

Yes training is a highly cost occurring activity, on the other side it is as important to increase the organization overall profitability. After the training is given we can judge either it was a beneficial investment or a sunk. It was all done with the help of data analysis.

Telenor Interview:

Respondent: Sehr Baber

Section 1: Big Data Analysis and Recruitment

Q.1. Do you use Big Data Analysis in decision making during the process of recruitment?

Yes It's very important use of data analysis in decision making for effective decision making its necessary use data analysis in recruitment decision in telecom sector many companies hire data scientist for making decision by using data analysis because through data analysis the decision you made meet the organization strategy so yes we use data analysis in the process of every decision. And gathering data is one object the important thing is that by having data how you make smarter decision its up on you how you see the data.

Q.2. What Are the Benefits of Using Data in Recruitment?

By the availability of huge amounts of information gathered from several sources especially from job boards, social media, career sites so there is a opportunity to rely more on facts by using data analysis and recruit the right person so it is much beneficial to use data analysis in recruitment.

Q.3. Do you think The Future of Recruitment Lies In Data Analysis if yes then how?

If you are good in data analysis and you can choose the right information from data so yes definitely future of recruitment lies in data analysis companies which are not using data analysis the cannot get competitive advantage ob their competitor. If I give you the example of our company because big data can give HR overall decision-making table when used properly. As it is an era of innovative technology our company has adopted the application submission and the scrutinizing process digitally and data-centrally. Considering the pool of applicants we decide the qualification/ certification, skills and experience based new hires. So this all we can gain through data analysis.

Q.4. Do you think Data Increases the Value of the Talent Acquisition and how?

Through the analysis of big data it is clearly found that we must have to take advantage of social media and set timelines and deadlines to stop wasting time and enhance the efficiency of work.

Q.5. what are the challenges Using Big data analysis During The Process of Recruitment?

For becoming successful organization the important decision are made on data basis. In the massive information time, data is made and exchanged, and there is lack of expertise to decide how and where it used to be. So this is a big challenge to utilize big data in organization.

Section2: Big Data Analysis Use in Training & Development

Q.1. Do you use previous Training and development experiences that the company has used?

With the previous record we will be able to know the contents of training. Employees in any organization is always ready to learn new things and skills which enhance their knowledge. So, without previous record we are not able to conduct such type of effective trainings.

Q.2. How big data analysis determining training needs?

Yes Big data predicts the future training trends on business and the return on investment of a specific training program. Companies use big data to analyze a training program and will see whether it will have the desired impact of organizational, individual and business unit. Success For example, eLearning ROI's include time saving, content consistency and better learning for outcomes.

Q.3. How data analysis contribute to the employee training process?

Definitely yes, the data analysis is important in the employees training process to find the gap between the current skill set and the required skill set and the impact on the

performance. If the gap is more it is fulfilled by providing the training. So data is important to find out this gap.

Q.4. Do you think data analysis Measuring the effectiveness of training models If yes then how?

Yes the data help to measure the effectiveness of the training. Recently I was working on the statistics of the training which the organization has provided in previous years. I was looking which training was effective, its cost and its overall return. What were the contents of that training and it was all possible with the help of data analysis.