

**HR ANALYTICS AS A PRECURSOR FOR ORGANIZATIONAL
PERFORMANCE AND COMPENSATION STRATEGIES: AN
EXPLORATORY STUDY IN SELECT INDIAN
ORGANIZATIONS**

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BHIMRAO
AMBEDKAR
UNIVERSITY



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Supervisor

Dr. KUSHENDRA MISHRA
ASSOCIATE PROFESSOR

Research Scholar

WEENA YANCEY M MOMIN
ENROLLMENT NO. – 154/14

DEPARTMENT OF RURAL MANAGEMENT
SCHOOL FOR MANAGEMENT STUDIES
BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY
(A CENTRAL UNIVERSITY)
VIDYA VIHAR, RAEBARELI ROAD, LUCKNOW-226 025
UTTAR PRADESH, INDIA

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CERTIFICATE

This is to certify that the thesis titled "**HR ANALYTICS AS A PRECURSOR FOR ORGANIZATIONAL PERFORMANCE AND COMPENSATION STRATEGIES: AN EXPLORATORY STUDY IN SELECT INDIAN ORGANIZATIONS**" submitted by **Ms WEENA YANCEY M MOMIN** is an original research work and has not been previously submitted in part or full for the award of any other degree or diploma to this or any other university.

The thesis submitted to Babasaheb Bhimrao Ambedkar University, Lucknow satisfies all the requirements as stipulated in *the Doctor of Philosophy (Ph.D.) regulations -1999 as amended in 2008/2010/2013* and it is fit for submission and evaluation for the award of the degree of Doctor of Philosophy of the university.

Date: 8/12/17


Supervisor



Head of Department
8/12/17

DECLARATION

I, **WEENA YANCEY M MOMIN**, a student of Ph.D. hereby declare that the thesis titled “**HR ANALYTICS AS A PRECURSOR FOR ORGANIZATIONAL PERFORMANCE AND COMPENSATION STRATEGIES: AN EXPLORATORY STUDY IN SELECT INDIAN ORGANIZATIONS**” submitted by me for the award of degree of Ph.D. Babasaheb Bhimrao Ambedkar University (A Central University) is my original work which I have completed under the guidance & supervision of **DR. KUSHENDRA MISHRA**, Associate Professor, Department of Rural Management, School for Management Studies, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow. I hereby declare that this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that this thesis or any part thereof has not been submitted to any other university or institute for any other degree or diploma and also undertaken that the thesis is essentially free from all kinds of plagiarism.

Date: 8/12/17

Place: Lucknow


Weena Yancey M Momin
Research Scholar
Enrollment No. : 154/14

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EXECUTIVE SUMMARY

The chief purpose of this study was understanding the influence of HR strategies viz. compensation strategy, talent management, and workforce optimization have an effect on Organizational performance when HR Analytics mediates the relationship and to comprehend the significant dimensions and variables to effectively manage the existence.

For attaining the aim and objective of the study, the chapters have been presented in the following sequences:

Chapter I mainly gives the summary of the entire research. It gives a bird's eye view of the concepts and background of Human Resource Management and HR Analytics. This chapter concludes with the arrangement of analysis as well as the definition of the key terms which has been used for the study which includes compensation management, workforce optimization, talent management, organizational performance and HR Analytics.

Chapter II gives the details of the concept of Human Resource Management and HR Analytics. It gives the background concept of HRA and its

Chapter 3 gives a meticulous evaluation of the pertinent literature. Review of these prominent studies is indispensable for establishing the gap in the present study. Hence, this chapter covers a meticulous and exhaustive review of related literature in order to gain an insight on what is Human Resource Analytics and how it supports the organization in performing better. In order to explore the opinion of the established researchers related to the study undertaken; the reviews of numerous research papers, white papers, video clips and articles in both national and international journals have been embarked on and also several related and focused books which contributed a broad perspectives on the study undertaken and supported to establish the research gap.

Chapter IV explains in detail about the methodology that has been used for the study. The research methodology that has been chosen for this study aids for improving the reliability and conjecture of the outcomes. This chapter specifically includes information which is pertaining to the population, sample size, choice of measuring instrument, research blueprint of the study, the procedures, statistical techniques used, and delimitations of the study.

Chapter V contains the results of data collected are interpreted and reported. The sample outlines of the target populations have been properly elaborated and explained in details. The determinants of reliability, validity and SEM modeling results have been discussed and statistical analysis of the hypothesis

testing results is also reported in this chapter. Elaborated and detailed explanation of SEM step by step procedure is also described in chapter V.

Chapter VI contains the detail explanations of the results of the previous chapter. Here the results of the findings have been discussed in details. This chapter gives an explanation of the entire research. In this chapter, discussions on the major findings of the study are related back to the initial problem statement, objectives, hypothesis, and conclusions are drawn which is based on the empirical evidence.

Chapter VII mainly consists of the various limitations the researcher faced during the study, suggestions for future research and the conclusion of the study. The simple objective of this segment is to sketch a summary and deliver the conclusion in the perspective of the established research objectives. This chapter introduces the summary of the entire research trailed by the recommendations and conclusion at the end. The scope of the study was also emphasized along with the exhaustive findings of the study which has become the core of this segment. The section also offers the importance of the research in the study.

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ABBREVIATIONS

Abbreviations	Full form
AMOS	Analysis of Moment Structures
AVE	Average Variance Extracts
BPO	Business Process Outsourcing
BA	Business Analytics
CEO	Chief Executive Officer
CFI	Comparative fit index
CS	Compensation strategy
CFA	Confirmatory factor analysis
CRM	Customer relationship management
DSS	Decision support system
HR	Human Resource
HRA	Human Resource Analytics
HRM	Human Resource Management
HRMS	Human Resources Management Systems
ICMI	International Customer Management Institute
IT	Information Technology
KPI	Key performance indicators
KPO	Knowledge Process Outsourcing
SPSS	Statistical Package for the Social Sciences
NFI	Normed Fit Index
GFI	Goodness Fit Index
RMSEA	Root Mean Square Error Approximation
SEM	Structural Equation Modeling

CHAPTER – I

INTRODUCTION

CHAPTER – I

INTRODUCTION

1.1 INTRODUCTION

Human Resource Management has developed extensively over the decade and has grown quite popular as the time passes, and now it is one of the vital conjoint characteristics for just about all organizations worldwide. The main base of its repute is the conjecture that HRM is a foundation for the competitive advantage which in turn controls the organizational outcomes and performance which leads generally to a progressive route. In order to attain a competitive upper hand over its opponents, every organization must arrange their HRM strategies with its comprehensive business approaches. Hence for doing so, organizations must embrace the arrival of new IT technology in every functional department. As the human resources are a vital part of every firm, accepting this new IT technology namely HR analytics provides them a better advantage to tackle every problem of HRM. The research undertaken explores more in details and assesses the alleged relationship between HRM strategies and organizational performance with HR analytics as a mediator. The chief hint behind understanding the relationship among HRM strategies and organizational performance is that HR strategies have a substantial effect on the members of staff outlooks and performance that stimulates better operational

performance, such as efficiency, excellence, and modernization, which in turn have a beneficial outcome on the market and financial performance.

This chapter gives a bird's eye overview of the complete research. It elucidates the statement of the problem, the research objectives with various hypotheses, which has been proven by testing the integrated conceptual proposed model, the blueprint of the methodology undertaken and a brief conclusion. The concluding part of the chapter gives a gist of investigation structure along with the definition of the various key terms that have been used in the entire research.

1.2 BACKGROUND OF THE STUDY

For acquiring an apt of sustainability and development, every organization's essential objective is to attain the highest profitability and good outcomes. For achieving its overall objectives, human resources needs to be managed to its highest possible means so that they can contribute to increased its performance resulting in improved organizational performance. Presently organizations have admitted the fact that the firm's human resources are a vital part and a unique foundation to gain a competitive advantage over its competitors. Barney (1991) outlines that people employed in organizations are a basis for competitive advantage unlike other resources, which means these resources are quite rare and tough to replicate by its opponents. Presently it can be comprehended that many companies all around the globe are having units and staffs who are utterly

dedicated to handling these human resources. As the time passes it can be seen that Human Resource Management (HRM) has progressively turn out to be a strategic contributor giving substantial value to the organization for better competitive advantage.

Human Resource Management has advanced in numerous forms and plays innumerable different parts such as human capital, laborers, and personnel and currently as human resources. New revolutionizing roles of HR also mean alterations in the approach of human resource managers planning's and their strategies in managing their workforce. The advancement of Human Resource Management has improved over the time, before when people were mistreated in slavery working environments to the current modern settings where employees are now given more value, appreciations and regarded as inevitable strategic partners to business.

In today's extremely competitive world, business has become the device which is wholly about investments, revenues, and profits. Every single function of business is now calculated in numbers and values, then why must HR be abandoned. Human resources have always been the vital asset for organizations for gaining the competitive edge in this competitive market. Nonetheless controlling and managing of these resources has relentlessly spawned a challenge among the HR professionals. However, that breached has been

packed up with the support of HR analytics the latest IT technological software which refurbishes the raw HR data into the insightful fact-based story which clarifies the HR managers with needed information to frame improved policies and strategies which generate better prospect for every organization. HR analytics supports the Senior HR management to quantify the worth of human resources which justifies the investments by backing it up with the hard reliable evidence. HR analytics helps the HR management to produce net benefits gained from the initiative.

Armstrong (2006) has enlightened by giving the meaning of human resource management as the premeditated and expressive style to the management of an organization's most esteemed possessions – the people working there who individually and collectively complement the achievement of its objectives. From this definition, it can be comprehended that fundamentally HR will work to relations intended which will expand Worker execution in administration from claiming their employer's vital purposes. (Johanson, 2009). HR is predominantly concerned with people management inside organizations that majorly focuses on the systems and policies (Collings & Wood, 2009). Department of HR in the organizations are customarily liable for several events, that includes recruitment of employees, giving training and development, managing the performance appraisal, and giving them rewards (e.g., managing pay and benefits systems) (Paauwe & Boon, 2009).

HR as an instrument for competitive advantage benefits every organization in the quantification of the challenges like staffing & recruitment issue, succession planning, attrition, compensation, performance management, retention problem, training and development, HR effectiveness measurements and much more which are being faced by HR professionals today. Being a perennial problem ever, F.W.Taylor has suggested in his book “Principles of Scientific Management” techniques to improve the economic efficiency, especially the labor throughput with the application of scientific ways and means. “Time and motion study”, proposes the use of standardized gears and enactment of standardized work systems that synthesizes the workflow in the organization that results greatly in improving the productivity of the employees wherever it is applied. As a consequence, Taylorism has fabricated the groundwork to transform HRM today. Owing to the prompt economic discrepancies and globalization, Human Resource department is repeatedly facing trials and are in persistent predicament towards decision making. Every passing day every single encounter is becoming more extreme. The high attrition rate is one of the most capricious aspects of any organization. If the turnover frequency can be prophesied accurately then it will support in improved workforce planning. This will aid the HR managers to develop improved compensation and benefits packages thus reducing the employee turnover rate. As every single variable of HR are interrelated, knowing the cause and effect of one problem can assist in devising solutions for all the others.

1.3 EMERGENCE OF HR ANALYTICS

HR professionals have been bearing gigantic duties and accountabilities on their shoulders at the moment. They look after starting from the staffing to hiring, payroll, and compensation, performance management, succession planning etc. HR contributes a lot to the organization from every single aspect. As the role of HR does not directly associate in the generation of profits, so their worth in the organization is generally unappreciated.

For a very long time, HR has struggled to substantiate its individuality. But at the moment HR has prospered in discovering new ways which are away from a traditional support part to becoming more strategic and data-driven one. For many of HR experts, the role has become more about the numbers and analytics. Just as how the data has changed marketing, put through its paces towards the HR as well.

Lately, HRA has to turn out to be a massive catchphrase in the world of human resource management. HRA is mainly established an extremely on new concepts and thinking which have existed in the turf of HR extensively. Bassi (2011), noted that back as far as the late 1970s, metrics, and measurements were always considered as part and parcel of HR. Fitz –Enz (1984) also indicated that HR experts have always embarked upon with problems associated with the measurement of human resource management over 30 years back. As we look back on time, HRM ancestries can be sketched back to the writing of Peter Drucker's from the 1950s, where HRM made its immense revolution in the mid-

1980s (Beer, 2015; Kaufman, 2015; Marciano, 1995). Later in the late 1990s, the attention has progressed from looking at the individuals as a profitable authoritative asset to the capability that can create upper hand for gaining competitive edge (Barney & Wright, 1998; Huselid, 1995; Pfeffer, 1994; Ulrich, 1997; Ulrich & Lake, 1990; Wright, Dunford, & Snell, 2001). Therefore, the innovative key buzzwords, human and intellectual capital become successively dynamic in both research academic and in the management community world (Stewart, 1997; Edvinsson, 1997; Ulrich, 1998). In the years that took after, much concern was synchronized at budding new technologies and techniques for reckoning out the ROI on human capitals. (Fitz-Enz, 2000; Bontis & Fitz-Enz, 2002).

A new innovation, for instance, HR Scorecards and Workforce Scorecards has been established in the first half of the 2000s, (Huselid, Becker, & Beatty, 2005; Ulrich & Beatty, 2001). These tools have permitted organizations to estimate and quantify the effect of HR undertakings on the performance of the organization.

In the mid- the 2000s, new and more scientific and evidence-based ways and means to HR were being called upon (Boudreau & Ramstad, 2007; Pfeffer & Sutton, 2006; Rynes, Colbert, & Brown, 2002; Rynes, Giluk, & Brown, 2007). HRA relatively has to turn out to be the theme of discussion in many journals

that mainly are merging on HR and people strategy (e.g. Feather, 2007; Fink, 2010; Levenson, 2005, 2011; Waber, 2013).

In a previous couple of years, HRA has received sizeable responsiveness in a protuberant oriented practitioner of management pipes such as Harvard Business Review, and others in their sequence of reports that are especially transcribed by the global consulting and technology giants. HRA the current buzzword is presently the theme of much discussion in the HR, the whole kit and caboodle (Rasmussen & Ulrich, 2015; Ulrich & Dulebohn, 2015). The chief highlighting of the research on HRA is mainly on how to use HRA as a decision assistance device that mainly gives a prognosis about the future actions, which is known as the “predictive analytics” (Fitz-Enz & John Mattox, 2014; van den Heuvel & Bondarouk, 2016, p. 8). Also, it is clear that the proliferation and accessibility of Big Data have prepared for HRA, as a great part of the reasoning around HRA resulting in the presentation of Big Data (Angrave et al., 2016). Big Data generates an endless prospect to make usage of the enormous volumes of data that supports in the HR-related decision-making processes (Angrave et al., 2016; Shah, Irani, & Sharif, 2016).

For the past century, Human Resource Management has renovated drastically. It has evolved from an operational discipline and directed to be more strategic discipline. The term has grown more popular over the period of time and the Strategic Human Resource

Management (SHRM) exemplifies this. The data-driven ploy that portrays HR analytics is in line with this development. By utilizing HR analytics HR professionals does not have to be governed by the gut feeling anymore. Analytics endows the HR professionals to make data-driven conclusions. Likewise, analytics also supports to evaluate the efficiency of HR policies and different intermediations.

The rich history of HR analytics can be outlined back to the late 1900's where Fredrick W. Taylor evaluated the job performance of the employees and put down the dimension of performance to do the job in the factory in his Scientific Management studies. In early 1960's, decision support system (DSS) began as computer-supported models which were generated to assist with the decision-making system (Bersin, 2012). Then in the late '70s and early '80s with the rough guide of reporting and basic metric capabilities, came the widespread usage of Human Resources Management Systems (HRMS) and the benchmarking opportunity introduced by the Saratoga Institute. Standard practices for calculating and reporting common metrics – like turnover, headcount, EEO representations - originated to take hold. The application of the process is fixated on the metrics such as time to fill, organization-oriented metrics including HR staff employee headcount, and financial based metrics such as cost per hire, which steered to efforts in the '90s to use balanced scorecards that supports HR leaders to reflect on goals and measure improvement and results. (Joanne Bintliff-Ritchie, 2011)

1.4 RATIONALE BEHIND THE STUDY

Resources are scarce. Hence every company desires to make most favorable utilization of each and every scarce resource. Finances are limited and hence everyone has their jobs cut out to create the finest possible use of this limited resource. In order to attain this, every business function has to diminish costs, increase revenue, maximize operational efficiency and lay emphasis on the strategic initiatives to stay beneficial, endure agility and attain sustainable development. One of the prevalent challenges an organization faces is when it plans to launch a fresh and innovative new merchandise or services is recruiting of right people for the right job, in time for carrying out bearing the costs, when talent exists in the organization. Retaining the top talent is needed for the company as it supports the cutting down on a lot of costs. So in order to commendably manage the best and existing talent, one needs to boost the compensation strategies so that a company can attain a sustainable compensation policy. Moreover, it grows awful for any organization if their best talents join hands with opponents. So the bottom line is the companies cannot standardize but they need to customize their compensation strategies, tailor-made for each and every employee which will in turn assists in achieving the larger organizational performance.

1.5 SIGNIFICANCE OF THE STUDY

HR Analytics is the latest emerging area in the world of HR. Worldwide organizations are using HR Analytics for making a better strategic decision. But in India, the concept is still new and very few organizations have started using HR Analytics for better workforce strategic decisions. Hence, very less research has been done in this area, which gives a lot of opportunities to explore and analyze its utilization and significance for organizational performance. Also, papers that are published are basically the whitepapers, which has given an ample opportunity for conducting empirical research and explore its in-depth knowledge.

1.6 PROPOSED CONCEPTUAL MODEL FOR THE STUDY

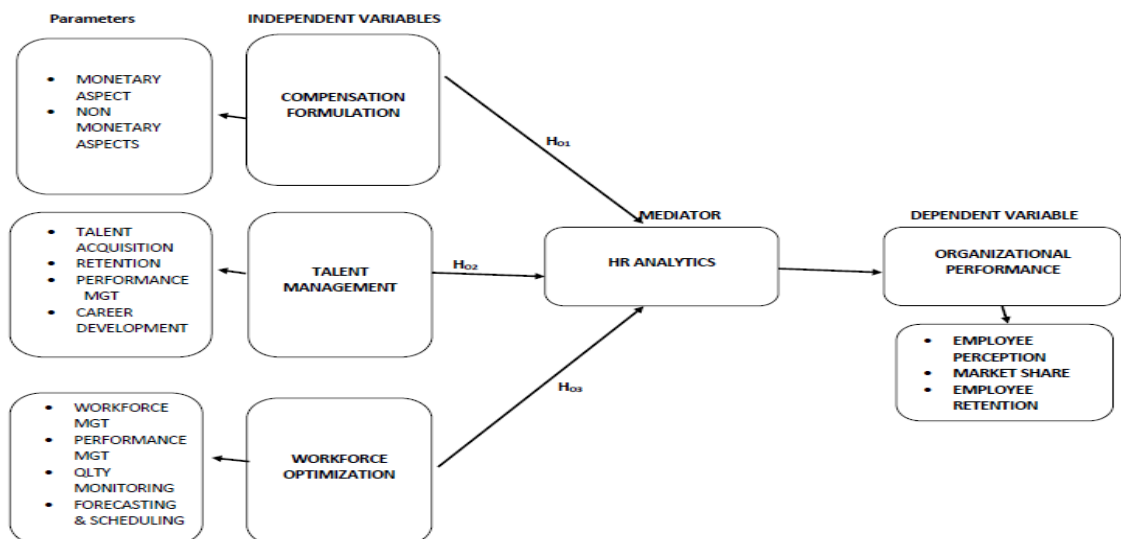


Figure 1.1: Proposed Integrated Conceptual Model: Organizational Performance under HR Analytics

1.7 INTRODUCTION TO THE CONCEPTUAL FRAMEWORK

After a thorough and rigorous review of related literature, it can be seen that there is a need to study the relationship between organizational performance and HR strategies when they are mediated by HR Analytics. Based on the review of the literature, it has been found that the studies done relating to HR Analytics is mainly in the western countries and not in India specifically. Also, less study has been done relating to the relationship between organizational performance and HR analytics. Hence there is a lot of opportunities to explore and analyze its utilization and significance for organizational performance when HR Analytics is implemented for overall strategy formulation.

The conceptual framework below will offer a strong foundation for examination and explore the study which will help in verifying the relationships between various HR strategies such as compensation strategy, talent management, and workforce optimization with organizational performance when HR Analytics mediates their relationship.

A conceptual framework has been proposed in this chapter, and in chapter 2 detailed and elaborated literature has been given. An integrated conceptual model has also been developed to test the relationship between the variables and constructs. A number of hypotheses have also formulated to test the

conceptual model in the study. This hypothesis was then tested in the empirical stage of the research with the help of SEM.

1.8 BRIEF INTRODUCTION TO THE METHODOLOGY

The methodology is the technique of discovering hidden answers to the taunting inquiry that starts the exploration and along these lines involves a critical part of any study. The research methodology that is chosen needs for improving the reliability and conjecture of the outcomes. The topics which have been covered in this chapter include research design, sampling procedure, measurement variables and instrument design, data collection method, questionnaire design, and data analysis.

Based on the theories, concepts, and frameworks discussed in the literature review, an **Exploratory cum Descriptive research design** is applied to arrive at conclusions. As the research is seeking a new insight into the subject of HR analytics by asking new questions and trying to bring a new light into it, thus the Descriptive Research – an exploratory approach has been chosen.

For this study, a total of 500 sample i.e 20 employees from every level of management of 26 organizations spread across 13 different sectors from various cities of India has been considered as a sampling unit. As the study is

exploratory in nature, **Purposive sampling** was used to prepare a selected organizations on the basis of obtainability of essential HR analytics practice.

In order to test the relationship of organizational performance and HR strategies with analytics as the mediator, a conceptual integrated model: Organizational Performance under HR Analytics has been developed and to test this model several hypotheses have been formulated. For testing the model, 5 points Likert scale with multiple items has been used which measures the independent, dependent and mediating variables. Data was then collected through the structured questionnaire which consisted of 2 CS, 3 TM, 3 WO, 3 HRA, and 3 OP items. Data were analyzed with the help of Structural Equation Modelling (SEM) using SPSS version 22 and Amos version 23.

1.9 DESCRIPTION OF CONCEPTS USED IN THE STUDY

The following are the key terms which have been used in the study. The terms used has been defined with the support of literature review to meet the objective of the study.

1.9.1: TALENT MANAGEMENT

One of the objectives of the study is on talent management and its effect on organizational performance. Human resource management is such a function of

the organization which is made up of various vital facets and one of them is talent management. As defined by J.P Mavdev (2015), talent management is a set of unified organizational HR practices which is intended to attract, develop, motivate, retain and engaged employees inside the organizations. Further, it can also be expressed that the talent management suggests to the expertise of appealing highly trained workers, integrating new workers, and developing and retaining current workers to encounter the existing and forthcoming business objectives.

Talent management can also be defined as a dynamic management system used by organizations to recognize, capture, utilize, cultivate, grow and nurture the ability of employees to the benefits of the work team and the organization at large (Meyer, Becker & Vandenberghe,2004).

Talent management mainly comprises of mechanisms placed together that ensures attraction, retention, and development of talent (D'Annunzio-Green, 2008).Talent management very critical as it benefits the organizations to effectively charm and offer the most skilled employees and uphold the necessary talent.

Ally Weeks (April 2017) defined Talent management as the function of HRM that attempt to discover means to appeal, identify, cultivate, engage, retain and deploy employees who are mainly treasured in an organization. Supervising this

talent strategically, organizations will be capable of building a high-performance place of work, stimulate a learning organization, enhance value to branding plan, and contribute to management with diversity.

The operational definition of Talent management adopted for the study is the combined review of definitions of many authors. After the rigorous review of related literature, talent management can be defined as the combined as a set of talent acquisition, retention, performance management and career development of the employees.

1.9.2 COMPENSATION STRATEGY FORMULATION

Gary Dassler (2011) expresses compensation as all methods of pay going to the employees arising from their service.

Compensation denotes to the benefits (cash, vacation, etc.) that an employee accepts in exchange for the service they offer to their employer. Employee compensation is generally one of the major overheads or expenses for any organization. (Mckinney P., n.a)

Also Bryan Sharp in his blog describes compensation as everything that a firm offers its workforces in place for their talent and time.

S.P. Robbins defines the term compensation management as the process of managing a company's compensation programme. The dominant intention of compensation management is to design a cost-effective pay structure that will entice, stimulate and retain proficient workers in the organizations.

Briana Whiting in her study blog defines Compensation management as the endeavor of distributing monetary and non – monetary value to an employee's effort through the organization's policy or procedures. In simple words, compensating an employee which is basically centered on the decided pay and benefits package for the certain post. The overall objective of compensation management is to discover superiority people who carry out quality work and then compensate them in order to retain them and ease the turnover rates. (Whiting B, n.a)

Hence from the above statements, the operational definition of compensation management for this study is compensation management is an act of allotting monetary and non – monetary value to a member of staff's work by abiding in the firm's policy or procedures.

1.9.3 WORKFORCE OPTIMIZATION

Genesys (2017) defines workforce optimization as a strategy which used to incorporate countless technologies and automated ways for dipping operational costs and manage employee performance more resourcefully thus resulting in greater efficiency and higher client contentment.

As defined by Angela Stringfellow (2017) Workforce optimization (WFO) is a sequence of business strategies that highlights on improving the efficiency of the employee. Organizations implement these strategies by keeping a watch on a particular position's action and assigns a suitable number of employees to meet the forecasted activity.

Scott Kendrick (2016) states that a WFO normally contains tools for workforce management, quality monitoring, liability recording, coaching and eLearning, performance management, surveying and speech analytics.

Hence the operational definition of workforce optimization for the study is a practice of filtering the overall effectiveness of workforces at an organization which can be obtained through monitoring the activity of a particular situation and then aligning the right number of employees with the forecasted activity.

Thus the workforce optimization comprises of proper workforce management, quality management and forecasting and scheduling.

1.9.4 ORGANIZATIONAL PERFORMANCE

Business dictionary defines organizational performance as an analysis of an organization's performance by comparing them to the goals and objectives. Within corporate organizations, three primary outcomes are generally analyzed namely financial, market and shareholder value performance.

Organizational performance can also be defined as an overall firm performance which includes productivity, efficiency, profitability, market value, and competitive advantage (Melville et al., 2004 AU29)

James Adows (2012) gives the definition of organizational performance as the evaluation and comparison of an organization's goals and objectives them with its actual performance mainly with three major parts namely financial performance, market, and shareholders value.

Nwuche CA, Awa HO (2011) states that the organizational performance also rests on the training and development of their workforce. Thus Organizational performance hinges on the employee development because employee

development enhances the knowledge base of the organization and also retains the top talents in the organization.

Hence the operational definition of organizational performance is generally organization's performance which includes productivity, efficiency, profitability, market value, employee development and competitive advantage.

1.9.5 HUMAN RESOURCE ANALYTICS OR HR ANALYTICS

Erik Van Vulpen (n.a) defined Human Resource analytics (HR analytics) as it is about analyzing an organizations' people problems.

HR analytics demonstrates the causal relationship between the activities exacted by an HR department and the business outcomes that result from this activity. HR Analytics actually does is demonstrate the impact that an HR department has on the organization in which it is embedded.

HR analytics can also be defined as “the systematic identification and quantification of the people drivers of business outcomes” (Heuvel & Bondarouk, 2016).

Hence the operational definition of HR analytics can be stated as the use of substantial data mining and business analytics methods to human resources data. The objective of human resources analytics is to make organizations available with the insights which will help in effectively handling workforces so that business aims and objectives can be reached swiftly and proficiently. (Aleksandra Swerdlow, 2015).

1.10 RESEARCH METHOD FLOW CHART

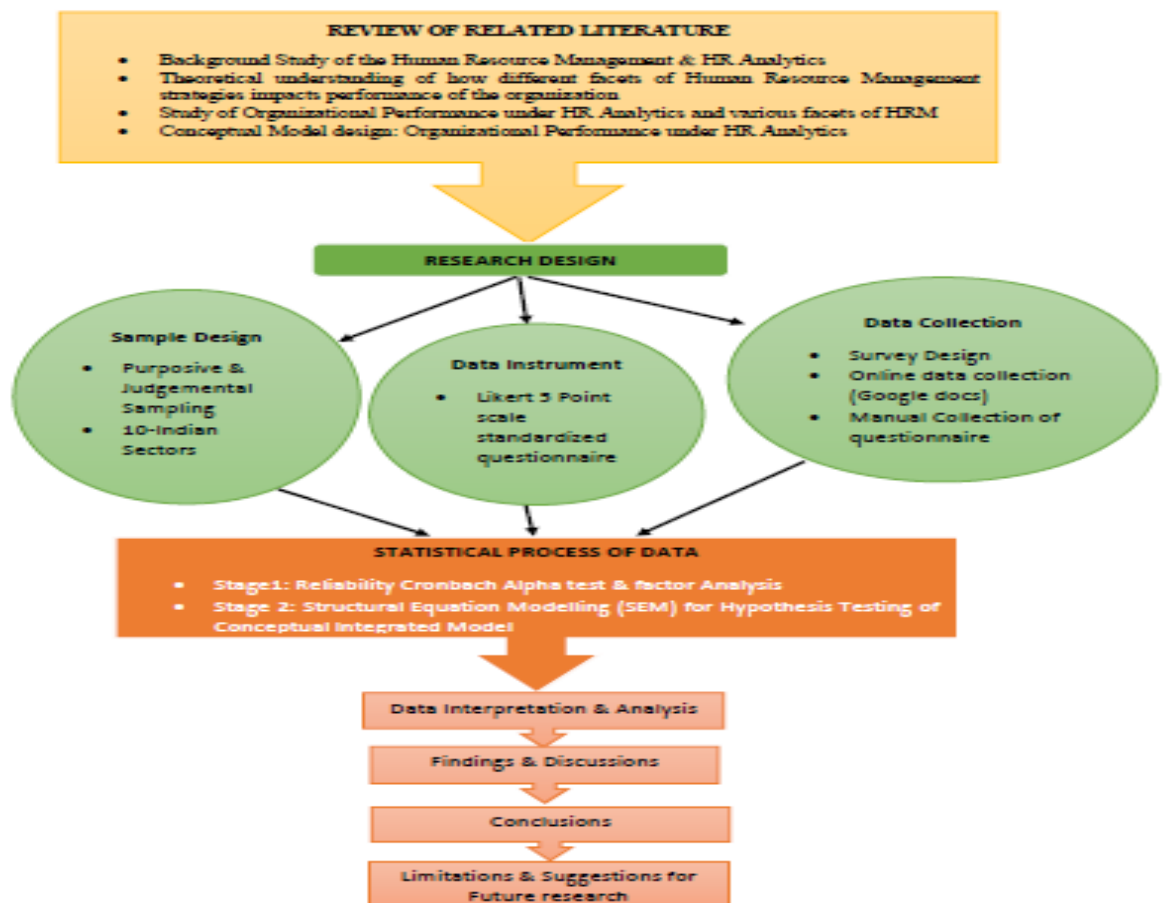


Fig 1.2: Flowchart of Entire Research Study

1.11 BRIEF SUMMARY TO THE THESIS STRUCTURE

For attaining the aim and objective of the study, the chapters have been presented in the following sequences:

CHAPTER I: INTRODUCTION

This chapter mainly gives the summary of the entire research. It gives a bird's eye view of the concepts and background of Human Resource Management and HR Analytics. This chapter concludes with the arrangement of analysis as well as the definition of the key terms which has been used for the study which includes compensation management, workforce optimization, talent management, organizational performance and HR Analytics.

CHAPTER II: INTRODUCTION TO HR ANALYTICS

This chapter explains the concept of Human Resource Management and HR Analytics. It gives the background concept of HRA and its emergence and development. The chapter mainly focuses on emergence, definitions, conceptual background and significance of HR Analytics.

CHAPTER III: REVIEW OF RELATED LITERATURE

Chapter 3 gives a meticulous evaluation of the pertinent literature. Review of these prominent studies is indispensable for establishing the gap in the present study. Hence, this chapter covers a meticulous and exhaustive review of related

literature in order to gain an insight on what is Human Resource Analytics and how it supports the organization in performing better. In order to explore the opinion of the established researchers related to the study undertaken; the reviews of numerous research papers, white papers, video clips and articles in both national and international journals have been embarked on and also several related and focused books which contributed a broad perspectives on the study undertaken and supported to establish the research gap.

CHAPTER IV: RESEARCH METHODOLOGY

This chapter explains in detail about the methodology that has been used for the study. The research methodology that has been chosen for this study aids for improving the reliability and conjecture of the outcomes. This chapter specifically includes information which is pertaining to the population, sample size, choice of measuring instrument, research blueprint of the study, the procedures, statistical techniques used, and delimitations of the study.

CHAPTER V: DATA ANALYSIS & INTERPRETATION

In this chapter, the results of data collected are interpreted and reported. The sample outlines of the target populations have been properly elaborated and explained in details. The determinants of reliability, validity and SEM modeling results have been discussed and statistical analysis of the hypothesis testing results is also reported in this chapter. Elaborated and detailed explanation of SEM step by step procedure is also described in chapter V.

CHAPTER VI: RESULTS & FINDINGS

Chapter VI contains the detail explanations of the results of the previous chapter. Here the results of the findings have been discussed in details. This chapter gives an explanation of the entire research. In this chapter, discussions on the major findings of the study are related back to the initial problem statement, objectives, hypothesis, and conclusions are drawn which is based on the empirical evidence.

CHAPTER VII: CONCLUSION, LIMITATIONS & SUGGESTIONS

Chapter VII mainly consists of the various limitations the researcher faced during the study, suggestions for future research and the conclusion of the study. The simple objective of this segment is to sketch a summary and deliver the conclusion in the perspective of the established research objectives. This chapter introduces the summary of the entire research trailed by the recommendations and conclusion at the end. The scope of the study was also emphasized along with the exhaustive findings of the study which has become the core of this segment. The section also offers the importance of the research in the study.

REFERENCES

APPENDIX

1.12 SUMMARY

The main aim of chapter I was to give a preview of the entire research. This chapter highlights how the research has been undertaken showing the blueprint to give the basic idea of the study. The research entitled “HR Analytics as a precursor to Organizational Performance and Compensation Strategy: An exploratory study in select Indian Organizations” tries to explain the relationship between HR Analytics and organizational performance. The study has suggested that the various HR Strategies helps in enhancing the organizational performance when HR analytics is implemented for overall business strategy formulation.

CHAPTER – II

**INTRODUCTION
TO
HUMAN RESOURCE ANALYTICS
(HR ANALYTICS)**

CHAPTER – II

INTRODUCTION TO HUMAN RESOURCE ANALYTICS (HR ANALYTICS)

2.1: INTRODUCTION

Organizations today are competing for a better future and reshaping their image in the industries. Globalization has made it mandatory every company in every industry to be on the edge, as they are competing to be the top dog in the market in the present day. To be on the Zenith, every organization must try to occupy the high ground and the key lies in the attainment of competitive advantage to be the leader in the industry and having a self-determining assessment about tomorrow's prospects and built proficiencies to exploit them. For attaining this sustainable competitive edge, organizations today must design their HR system linking with their overall corporate objectives and goals. No functional area of any firm can function without the assistance of its workforce assets. Subsequently the most vital assets (human assets) of organizations today inherently influence the general system of the business.

Organizations are made up of people; these people can make or break an organization. Every organization is striving to ascertain some new solutions on

how to persuade people to make the organization. It's important not only finding the right people who can contribute positively to an organization, but also make them accomplish the essential competencies and motivating them to add importance continuously to the success of the organization. The function of the organization that takes care of managing people is called Human Resources Management. It fundamentally deals with employing the right people, developing their competencies as per the demands of the organization, compensating, utilizing and maintaining them to meet the desired organizational goals. People with diverse competencies and backgrounds must be managed effectively by the organization. To enable this, modern organizations are required to graft integrated talent management system.

Human Resource Management plays a critical role in any organization. Human resource management is a function of the organization specifically envisioned to capitalize on the employee's performance in service of an organization's strategic objectives. The prevailing economic set-up is forcing Human resource Managers to focus their attention on its workforce performance for generating returns for the business. But as global economic and political settings are changing. It has started to bother the corporate leaders, and hence their attention has turned to the various devices that can nurture success in uncertain times. In today's fast emergent economy, competition has intensified among organizations. To achieve strong competitive edge, organizations are obligated to align their HR strategy with their complete business strategy. No functional

area of an organization can function without the help of human resources. Hence human resources integrally affect the overall strategy formulation of the organization. Humans are the greatest means an organization can have. Thus, human resource management is that portion of the organization which is concerned with the “people” phase (DeCenzo and Robbins, 1996). Every organization is basically comprised of its people. And ensuring their productivity remains profitable to the organization is the work of the HRM.

As the economic set-up keeps on fluctuating due to globalization, Human resource department also needs to adapt to this new variation. Hence, retaining top talents is the crucial concern for the HR today. Better employee engagement and retaining strategies are the requirements of the era. For instance, HR today is mainly engrossed in the execution of strategies in the form of cutting back and restructuring through outplacing employee performance related pay policies, reducing wellbeing care overheads and retraining most skilled employees. Hence, even in the increasingly competitive environment today, forming HR practices that build employee commitment usually help expand organization’s responsiveness. The success of the organization rest on its people. Human resources help the organizations to manage and last in the midst of fast growing and the fast changing socio-economic setting by exploiting business opportunity with the minimum risk and challenges. Hence humans are remarkably important and provide a strategic advantage in the fiercely competitive market.

HR as an instrument for competitive advantage aids every organization in the quantification of the challenges like staffing & recruitment issue, succession planning, attrition, compensation, performance management, retention problem, training and development, HR effectiveness measurements and much more which are being faced by HR in the present situation. Being a perennial problem ever, F.W.Taylor has suggested in his book “Principles of Scientific Management” how to improve the economic efficiency, especially the labor productivity with the application of scientific methods. “Time and motion study”, recommends the using of standardized tools and putting into practice a standardized work method that synthesizes the workflow in the organization hence prominently improving the productivity of the employees wherever it is applied. Thus, Taylorism has built the foundation to renovate HRM today. Owing to the rapid economic variations and globalization, Human Resource department is repeatedly facing trials and are in constant predicament towards decision making. Every passing day each challenge is becoming more intense. The high attrition rate is one of the most volatile factors in any organization. If turnover rate can be predicted accurately then it will aid in better workforce planning. This will aid the HR managers to develop better compensation and benefits packages hence reducing employee turnover. Since each variable of HR is interrelated, knowing the cause and effect of one problem can help formulate some solutions for all the others.

Human Resource Management deals with the management and claiming of human resources. Its main function is to increase capacity and efficiency of its

employees intended to expand worker execution capabilities in organizations keeping in mind the employer's key targets. HR is essentially concerned with those who oversee the economy for individuals inside organizations, centering on strategies which are focused on frameworks of the policies of the company. HRM as a division is mostly associated with those that undertake several activities including a member of staff profits design, recruitment, preparing and development, and execution of appraisal of every employee. HR also concerns itself with organizational transformation and industrial relations, by balancing the organizational practices with requirements arising from collective bargaining and from governmental laws.

Armstrong (2006) well-defined the term human resource management as the strategic and most coherent ploy to the management of an organization's most cherished possessions – the people employed there, that contribute individually and collectively to the achievement of its objectives. HR is predominantly concerned with how people are managed inside the organizations that ultimately focuses on the framing of policies and systems (Collings & Wood, 2009). In the organizations, the HR departments and units are usually liable for several activities, including recruitment, training and development, performance appraisal, and rewarding of the employees (e.g., managing pay and benefits systems) (Paauwe & Boon, 2009).

The strategic impact of unique proficiency of the employees has been appreciated after the study was made by McKinsey & Co and found that the most vital and imperative for the corporate business in the next 20 years will be talent: smart, sophisticated businesspeople who are technologically literate, globally astute, and operationally agile. And the demand for talent will increase and the supply of it will go down. The war for the shortage of talent between companies is the biggest human resources concern (Makela et al., 2010). The organizations that are interested in achieving its strategic goals must adopt unique approaches for attracting, developing and retention of talented employees (Huselid et al., 2005). Thus, talent is the core competency of the organization and its management will enable organizations to be competitive.

2.2. HR ANALYTICS BACKGROUND:

HR has simple prime functions that can be enriched by applying processes in analytics. The functions majorly include acquiring the talent, optimization, and developing the personnel of the firm. HR analytics aid to dig into the major glitches and apprehensions surrounding these requirements and making use of the analytical workflow, it guides and enables the managers to respond to the problem-related questions and gain awareness from the information that comprises statistics at hand then makes significant decisions and make fitting arrangements.

Human Resources Analytical tool is the latest IT technology which has provided HR executives, HR professionals and line managers with the powerful metrics, alerts, and reports empowering them to apprehend how workforce dynamics are affecting the individual, departments and take apt measures. Managers and front-line professionals receive critical information on staffing, recruitment, workforce development, workforce cost, and diversity at levels of detail such as by geography, job category, division, and pay grade, etc. This HR analytics or workforce analytics has given the organizations the power to make workforce decisions by reducing the costs, identifying the revenue streams, mitigate risks, and execute effective business strategies. HR analytics empowers the HR managers with accurate predictive analytics which determines the future, mainly for the organizations seeking a more proactive role in driving business strategy. HR Analytics enables the HR Managers to make human capital decisions that impact the business results. Hence, it enables the HR to be more engaged in the formulation of the corporate strategy.

For the past century, Human Resource Management has renovated significantly. It has developed from an operational discipline and headed for a more strategic discipline. The term has gained more popularity over the period of time and the Strategic Human Resource Management (SHRM) exemplifies this. The data-driven tactic that reveals HR analytics is in line with this development. By utilizing HR analytics HR professionals

does not have to bank upon gut feeling anymore. Analytics empowers the HR professionals to make data-driven verdicts. Likewise, analytics also helps to assess the efficiency of HR policies and different interventions.



Fig 1.1: HR decisions no longer based on Gut feeling

Source: AnalyticsinHR.com

Just as the marketing and financial analytics have been transformed its fields, HR analytics is revolutionizing HR, enabling them to:

- Make improved evidence-based decisions by using the data related to its workforce
- Produce a business state of affairs for HR involvements
- Check the value of these contributions
- Change from an operational partner to a tactical, or even strategic partner

Presently, the many of the HR departments' emphases on reporting employee data. But this does not suffice in the present-day data-driven economy. Keeping the records is often not sufficient to add to a strategic value. Eric Van Vulpan (2016) quoted Carly

Fiorina that the main purpose of analytics is to turn data into more informed facts and information into insight thus applying to HR as well. Using of Analytics gives the HR more empowerment to grow into more decision-making on a strategic level.

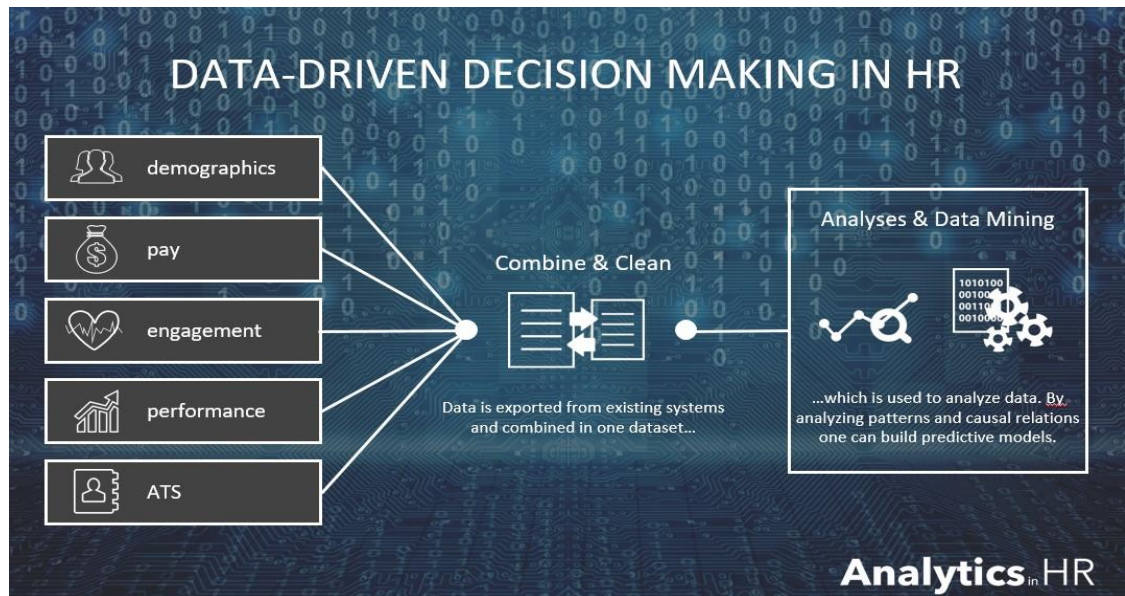


Fig 1.2: Data-Driven Decision in HR

Source: AnalyticsinHR.com

2.3 DEFINITIONS OF HR ANALYTICS:

Technopedia (2016) illuminates HR Analytics as an area in the arena of analytics that states the application of analytical processes to the human resource department of an organization in the anticipation of refining the better employee performance and therefore getting an improved return on investment. Further, it also defines HR Analytics as not just dealing with data gathering on

the employees' efficiency but also offers an insight into each progression by gathering data and then using it to create relevant decisions about how to improve these processes.

The blog in Technopedia (2016) explains HR analytics as correlate the business data and people related data, which enables to establish the essential connections later on. The crucial aspect of HR analytics is to conclusively establish the impact of HR department in the organization as a whole. It generally establishes a cause-and-effect relationship between what HR does and business outcomes - and then frame strategies which are centered on that information.

The blogger of Tech Target (2012) is also of the opinion that the main objective of human resources analytics is to help an organization with insights for successfully managing its workforces so that corporate goals can be reached promptly and competently. The ultimate task of human resources analytics is to mainly ascertain what kind of data that should be captured and how those data should be utilized to model and foresee capabilities so that the organization acquires an optimal return on investment (ROI) on its human capital.

Also as defined in the article of Cornerstones (2017) HR analytics, also well-known as talent or people analytics, is the usage of sizable mining of numerous information which is stored in the organization and business analytics practices to talent data. Analytics measures the performance and efficiencies that matter to HR only. Few of the examples includes: phase to fill a job requisition, numeral people that are trained, number of people proficient skills, yearly turnover rate, expected attrition for future, projected applicants to have in the line which is based on anticipated attrition, sources providing the top candidates, agreement reporting, reporting in variety.

According to an article featured in Human resources MBA, HR analytics establishes the fundamental connection between the activities claimed by HR department and the business effects that arise out from this motion.

Another author Peter Reiley (2016) is of the opinion that HRA mainly concentrated on the forecasting and building the links that are relating to HR activities (and/or workforce data) and organizational outcomes. Further, he describes that the part of HR analytics is predominantly refining business decisions and driving action. Thus it can be said that HRA is a method of straightening out people-related business hitches, mostly by using data drawn from multiple fronts, by collecting and presenting data through the dashboards. HR analytics is the mode by which multiple data sources mainly about its

people and business are applied for a business problem-solving or risk-mitigation process.

Edward Houghton (2017) explains HR Analytics as the practical usage of people associated data in analytical processes to decrypt business-related problems. HR analytics uses together people-data, which has been composed of HR systems (e.g. payroll, absence management) and the business data (e.g. operations performance data). HR analytics thus empowers the HR practitioners and the employers to increase imperative visions into their personnel, HR policies and practices, specifically focusing on its human capital element of the workforce, and ultimately providing additional evidence-based decision making. HR analytics predominantly supports the HR professionals to have an improved understanding of its workforce in spawning significance for its organization. It offers a framework of the quantitative and qualitative forms of HR data that embraces the cause and effect relationships between data sets.

Heuvel & Bondarouk, (2016) has defined HR analytics as the organized identification and quantification of the people drivers of corporate conclusions. It is basically a data-driven method headed for HR. Eric VanVulpen (16th May 2016) in the blog states that Human Resource analytics is about analyzing an organizations' people linked problems with help of data mining. Vulpen further explains that HR departments have been collecting enormous amounts of HR

data in the organization which remains unused. But as soon as organizations start to use these data and analyze the people related problems by utilizing this data, they are involved in HR analytics. In order to gain a competitive edge over its competitors, strategic planning has become more complex for business units and subsequently for HR function as well. By adopting HR Analytics to guide the decisions making and strategic development processes, new opportunities have arrived which are applicable to all core HR processes such as talent acquisition, attrition, risk management, succession planning, retention, compensation planning, and capacity planning. By using HR analytics organizations have taken the guesswork out of the employee management by means of leveraging analytics to improve their methods of attracting and retaining talents, connecting their employee database to business performance which has helped them in differentiating themselves from their competitors.

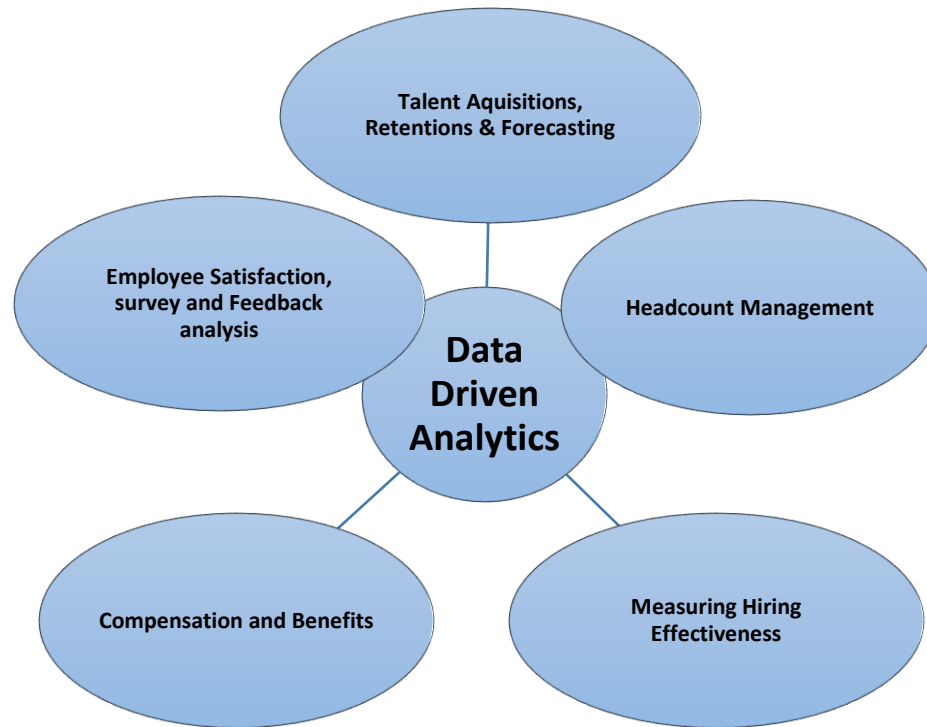


Fig 1.3: Core Data-Driven Analytics

2.4: HR ANALYTICS: EMERGENCE AND DEVELOPMENT

Human Resource department seizes mammoth amounts of data about the employees like the performance of the employees, turnover rate, job mobility, training and development, compensation, staffing and much more. These data remain motionless in various HR systems and are rarely used for any strategic decisions. But with the emergence of the latest IT technology viz. HR Analytics these unused data can be utilized for making a fact-based strategic decision.

Quantifying the HR raw data into insightful data is the need of the hour. HR analytics helps to quantify these raw data into valuable information which the HR managers utilize to make a strategic fact-based decision. Humans are well-thought-out as the capital once their values have been identified. HR analytics helps to discover out the ROI on HR projects which supports the Senior HR management to give worth to the human resources.

HR analytics aids the HR managers to examine and predict the forthcoming effect that affects the organizational performance. HR analytics play a progressively imperative role in addressing strategic human capital challenges by permitting the HR professionals to make human capital decisions that impact business results. HR Analytics also helps in:

- Mining compensation data
- Spotting skills availability data
- Setting benchmarking data
- Modeling tools for organization definition and job structure
- Post-hire assessment tool.

Human Resource Analytics is a communication device that fetches the data together from different sources to tint a cohesive and actionable picture of present-day conditions and likely futures. It also gives an improved and more

precise understanding of how numerous issues impact the workforce and organizational performance.

In the report of Price Waterhouse Coopers (PwC) (2014), states that the HR analytics has renovated the world of HR. The HR department that uses the analytics go forward into a strategic partner and achieves sustainable competitive advantage for their organization.

Also as denoted by the article in Manthan (n.d.) HR analytics integrates and correlates disparate data from various sources across the organization to provide relevant, timely and actionable insight to improve the employee performance and the ROI. The use of this analytics aids the organization to be more informational leading to take more relevant decisions timely and more appropriately giving a sustainable competitive edge over its competitors.

The Oracle white paper (2011) explains that through the use of HR analytics organizations today can drive their financial return on human capital investments and improve the value of their workforce to the organizational performance. It also clarifies how HR analytics increases the analytical insight which aligns the core workforce business process with the overall business goals and thus ensuring organizations make the right decisions today for the future.

2.5: EVOLUTION:

The rich history of HR analytics can be traced back to the late 1900's where Fredrick W. Taylor analyzed the job performance of the employees and laid down the capacity of performance to do the job in the factory in his Scientific Management studies. In early 1960's, decision support system (DSS) began as computer-supported models generated to assist with the decision-making system (Bersin, 2012). Then in the late '70s and early '80s with the introduction of reporting and basic metric capabilities, came the widespread use of Human Resources Management Systems (HRMS) and the benchmarking prospect which has been introduced by the Saratoga Institute. Standard practices for calculating and reporting common metrics – like turnover, headcount, EEO representations - began to take hold. The utilization of process engrossed metrics such as time to fill, organization-oriented metrics including HR staff employee headcount, and financial based metrics such as cost per hire led to efforts in the '90s to use balanced scorecards to benefit HR leaders which will reflect goals and measure, progress and results. (Joanne Bintliff-Ritchie, 2011

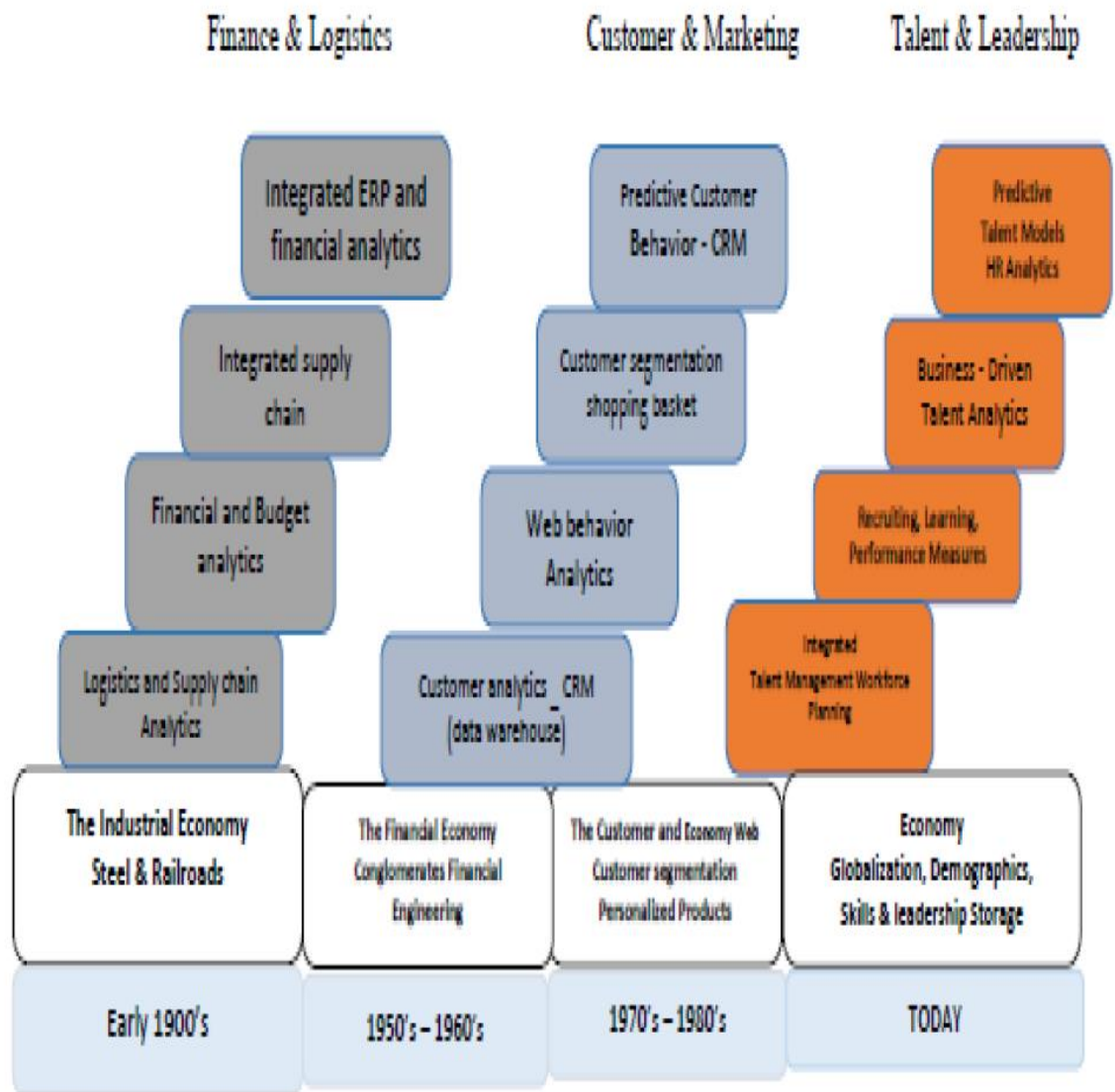


Fig 1.4: TIMELINE OF HR ANALYTICS EVOLUTION

Source: Bersin & Associates 2012

2.6: CONCEPTUAL BACKGROUND:

For improving the worth, it is crucial for HR to be able to progress from ‘tracking’ (metrics & reporting) to the ‘analytics’ (impact analyses for organizational improvement). In achieving this, HR should change to analytical competencies in the three areas viz. efficiency, effectiveness, and impact (Lawler et al, 2004).

- **EFFICIENCY:** These mostly assess the HR accomplishments with a strong financial emphasis. It is the capacity of whether a certain goal (i.e. recruitment, training) has been attained with the means and time investment that are to be claimed. It is mostly expense-related data such as the cost of salaries, training, recruitment, absences, etc. that are addressed here. These are important data and hence they have to be well-organized. Unfortunately, they do not add significant value to HR work.
- **EFFECTIVENESS:** The aim of this measurement is to check if HR programs and activities do what they should be doing rather, do they have an effect at the level of skills, motivation, and empowerment of the employees. Evaluating training results or the quality of newly recruited employees etc. are typical effectiveness measurements. HR analytics clearly adds more value to this type of measurements but cannot yet indicate what the impact is on the proper functioning of the organization.

- **IMPACT:** The highest step is impact measurement. The field of true HR analytics is examining whether HR investments, HR activities or HR processes have a tangible impact on the organization. This comprises of examining whether changes in skills, motivation, and empowerment as a result of the implemented HR programs and activities lead to changes in operational and financial performance. By linking the databases of various positions (HR, finance, operations, sales, and marketing) correlations and causal nexuses are made that provides an important insight into strategic decision-making.

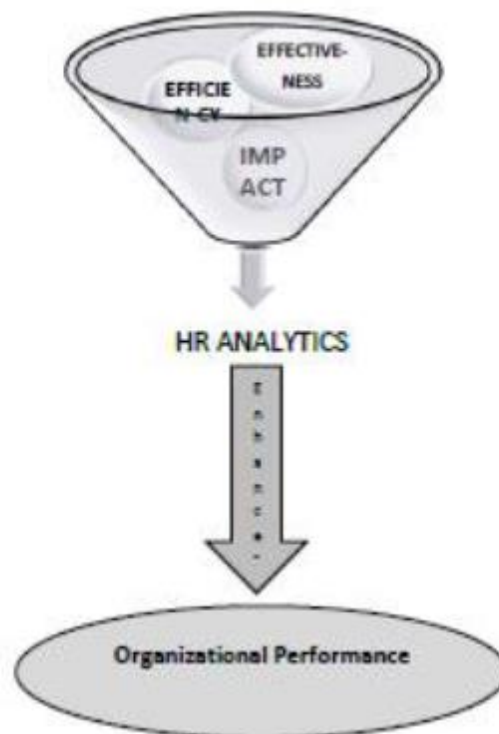


Fig 1.5: Metrics for Organizational Performance

	EFFICIENCY	EFFECTIVENESS	IMPACT
Analytics objective	Measurement of HR activities, volume (e.g. # of hours/days) or cost focus	Measurement of HR programs that have desired effect in the area of knowhow and expertise (e.g. learning)	Measurement whether HR investments have a tangible impact on the business or organization
Used data	Accounting-related data	Primarily interview & survey data, derived from participants & line managers	Data from HRIS, Survey, Business (e.g. revenue, customer satisfaction, productivity, safety, ...)
Data Source	Single source (one data source), mostly HRIS	Single source (one data source), mostly survey data	Multiple source (linking several data sources)
Type of measurement	Tracking, reporting	Tracking, reporting	Statistical analysis, Predictive modeling
Analytics capabilities	Knowledge of HRIS systems and/or accounting basics	Knowledge of interview and research techniques, average knowhow of data collection and analysis/reporting	Integrating and linking data from different sources and conducting statistical analysis (correlations, causations, predictions)
Examples	<ul style="list-style-type: none"> • Total cost of training • Cost of turnover • Cost of absence • FTE vs. Revenue ratio • Productivity ratio's: Revenue vs. hours worked • Cost of hire 	<ul style="list-style-type: none"> • Has person X acquired the right skills to be able to operate independently? • Has leadership coaching program led to better leadership quality? • Quality of hire 	<ul style="list-style-type: none"> • What is the impact of high turnover on customer satisfaction? • Impact of sales training on sales growth? • Impact of stress on work accidents and productivity? • Time to productivity

Table 2.1 Analytical Competencies measurement of HR

Source: HR Analytics Insight blog by iNostrix

In the past HR may have had hunches and theories as to why some of the HR programmes had worked whereas others did not, and made judgments based on just these hunches or theories. The new technology viz, HR Analytics now give HR professionals the ability to follow these instincts and validate them with data providing statistical evidence that leads to insights that support change, re-direct the HR budget/effort, and convince the senior leadership team of the need for change.

2.7: CONCLUSION:

Management cannot exist without measurement. Currently, HR is expected to have a strategic role in planning and defining the significance of human capital in businesses. HR has occupied the role of forecasting through Analytics and offers a futuristic outlook for organizations today. HR Analytics focuses on using metrics that can be defined in an HR context, comprising the HR processes and analyzes the value in business terms. HR Analytics plays a pivotal role in any context of HR, whether it be during a strategic acquisition procedure or the firm's decision to acquire into a different line of business or the traditional method of recruitment or strategy design for a performance management for employees or a survey to recognize employee expectations or insight of the company culture, any of which that directly or indirectly enhances the worth to the business aims of the company. For gaining competitive advantage, people data quantification, human capital metrics and scrutiny of these data related to people are critical expertise in HR Analytics. Hence HR Analytics not only provide organizations the insight into the people related problems but also helps the HR professionals in the formulation of the better enhanced corporate strategy to gain a competitive advantage over its competitors.

Thus, this study attempts to find whether HR analytics enhances the performance of the organization as a whole. It will also attempt to determine how HR analytics empowers the HR managers in Indian companies to make

fact-based decisions supported by statistical evidence in justifying their investments. It will also try to determine the linkage between HR analytics and Compensation strategy formulation.

CHAPTER – III

**REVIEW OF THE
RELATED LITERATURE**

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REVIEW OF RELATED LITERATURE

3.1: INTRODUCTION

Countless studies lately exist that contributes unique viewpoints about human resource management and its related concerns. Review of these prominent studies is indispensable for establishing the gap in the present study. Hence, this chapter covers a meticulous and exhaustive review of related literature in order to gain an insight on what is Human Resource Analytics and how it supports the organization in performing better. In order to explore the opinion of the established researchers related to the study undertaken; the reviews of numerous research papers, white papers, video clips and articles in both national and international journals have been embarked on and also several related and focused books which contributed a broad perspectives on the study undertaken and supported to establish the research gap.

3.2: THEORETICAL UNDERSTANDING

Human Resource Management has progressed in many forms and plays various diverse roles such as human capital, laborers, personnel and current human resources. New remolding in these roles also mean modifications in the approach of human resource managers planning's and their strategies in

managing their workforce. The advancement of Human Resource Management has enhanced over the stretch when people were victimized in slavery working environments to the present-day modern settings where employees are now given more importance, appreciations and considered as unescapable strategic partners to business.

In today's extreme competitive domain, business has turned out to be the device which is absolutely about investments, revenues, and profits. Every single function of business is now calculated in numbers and values, then why must HR be left behind. Human resources have always been the vital asset for organizations for gaining the competitive edge in this competitive market. Nonetheless, management of these resources has constantly generated a challenge among the HR professionals. However, that breached has been filled up with the support of HR analytics the latest IT technological software which renovates the raw HR data into the insightful fact-based story which enlightens the HR managers to frame better policies and strategies that will create a better opportunity for every organization. HR analytics helps the Senior HR management to quantify the value of human resources which justifies the investments backing up with the hard reliable evidence. HR analytics helps the HR management to produce net benefits gained from the initiative.

Years have gone by in acquiring knowledge and thoroughly understanding the workforce management. As attempted by Taylor (1911) originally in a

scientific method that developed the ways to measure and capture the effectiveness of the workforce of the organizations.

Backing up the work of Taylor, Creelman (2005) also held an opinion that there is an irrepensible feeling that there was something more imperative that HR has to be measuring. But as the globalization time has required the firms to be for competitive, Human resources has become the most important asset for organizations to become the market leader. The recent research study conducted by the Institute for Corporate Productivity (2013) articulates that countless organizations are still sadly ill-equipped to deal with the swiftly mounting of the data and that if even several HR organizations are skilled at gathering and measuring HR activities, but very few can devise the ability to measure the outcomes or recognize the issues that most affect the results. Supportive of the above testimonial, Pauwe (2004) also indicated that though HR intermediations like training and payment bring about the outcomes such as an increased contentment and commitment, which successively encourage the organizational performance, as decisions are mostly supported by a sophisticated data analysis.

Mayo (2008) also pointed out that nowadays only a few organizations are not able to measure the real value that people bring to their business. A similar statement was given by Fink (2010) that many organizations are not being able to quantify the contribution of their intangible assets accurately. Instead,

methods used are honestly standard analytical tools, such as regression, and most organizations only focus on data that is easy to understand. Overall, the main focus of HR is on collecting and reporting data about activities instead of outcomes, while the analyses are mostly very simplistic (e.g., limited analyses of drivers of outcomes). As a result, Ulrich (2010) stated that there is a need for HR to develop itself from descriptive metrics to predictive analytics.

HR as a tool for competitive advantage aids every organization in the quantification of the challenges like staffing & recruitment issue, succession planning, attrition, compensation, performance management, retention problem, training and development, HR effectiveness measurements and much more which are being faced by HR. Being a perennial problem ever, F.W.Taylor has suggested in his book “Principles of Scientific Management” how to improve the economic efficiency, especially the labor productivity with the application of scientific methods. “Time and motion study”, suggests the using of standardized tools and implementation of standardized work methods that synthesizes the workflow in the organization hence greatly improving the productivity of the employees wherever applied. Thus, Taylorism has built the foundation to transform HRM today. Owing to the rapid economic variations and globalization, Human Resource department is regularly facing trials and are in constant predicament towards decision making. Every passing day each challenge is becoming more intense. The high attrition rate is one of the most volatile factors in any organization. If turnover rate can be predicted accurately

then it will aid in better workforce planning. This will aid the HR managers to develop better compensation and benefits packages hence reducing employee turnover. Since each variable of HR is interrelated, knowing the cause and effect of one problem can help devise solutions for all the others.

But recognizing human behavior has always been the strong challenge an organization has to face. Employee's good attitudes, job satisfaction, and many such other factors are although indispensable in carrying out one's duty but cannot be quantified. Overlooking these factors can spell doom for the organization. Hence quantifying, measuring and controlling these aspects holds the key to a better workforce performance leading to better organizational performance as well.

From the above literature, it can be stated that for a thorough review of the related literature regarding various facets of Human Resource Management for gaining a competitive edge is needed. For understanding the significance of how Human Resources add valuable significance, the review of the related literature has been divided into five different factors which lead the organization for better competitive advantage.

3.3: TALENT MANAGEMENT:

In the past, HR department has mainly based on the hunches and their gut feelings. Human Resource department which is made up of a purely human asset of the organization could not be quantified. The HR Management had some hunches and theories as to why some of the HR programmes had worked whereas others did not, and made judgments based on just these hunches or theories. But these are based on human judgments, not facts and evidence-based. As the organizations faced the more competitive market, HR cannot afford to base its action on its gut feelings alone and switched to an evidenced-based decision and strategy formulation.

Present-day literature has revealed a keen focus of experts and researchers on employee retention and talent management as one of the key strength for better organizational performance as it is critically important for the economic success of a firm in the long-run. If the workforce of the firm is satisfied with their job, this not only enhances their productivity but also addresses their switching intentions. Employee attrition has become the most concerned factor for every organization. Hence managing talent efficiently in the organization will help in retaining its most valuable employees and avoid the unfavorable impacts that might come about because of attrition.

Kahinde (2012) in his paper Talent Management: An effect on Organizational Performance says that the need to boost the efficiency of the business organization lies at the core of the management of the firm. A number of resources to achieve this includes money, workforce, and the machine, and of all these resources, the most important are humans. Previously people working in the business organization have been rendered numerous values, and also once referred to as the factor of production at one point in time calling them human recourses of the firm. Today more values are given to the workforce in the framework of the firm. They are considered as the talent working within the organization, and this has brought forward the idea of talent management.

Analysis of Kahinde (2012) in his research paper also revealed that talent management has a positive impact on the overall performance of the organization. It also is shown that talent management structure has a great influence on the performance of the multinational and the national business but does not have much impact the small and medium scale firms. The author also recommends that talent management should be used in the firm for generating a pool of talent. The concept of Human Resources is considered a valuable asset has been taken from the intellectual capital theory which has defined as a stock of flows of knowledge available to an organization. These can be regarded as the intangible resource associated with people which together with the tangible resources like money and physical assets comprise the market or total value of the business (Armstrong, 2011).

Talent management mainly encompasses on arranging of the right people in the right jobs (Devine, 2008). This makes certain that the staffs make the best use of their talent for the optimal achievement of the organizational goals and objectives. Developing a better strategy for talent management has been linked to successful attraction, retention and to the development of employees as well (Baheshtiffar, 2011).

The leading researcher and internationally renowned Global Product Marketing Manager for Strategic Management, Goren. B, (2008) states in her research paper, Five Steps to Optimizing Human Capital, that the Battle for Talent in the organizations is not only looming crisis for which HR must not only prepare for but it is already upon every organization of all sizes right now. The New Reality is that we are in the midst of talent management challenges at all levels of management.” This reality requires organizations to use human capital information in a purposeful, precise and proactive way to optimize the workforce. At its most basic level, workforce optimization means securing the right employee in the right position, at the right time and location for the right cost. More specifically, it can mean minimizing outsourced or unproductive workers, maximizing retention of critical workers through reorganization or downsizing, or minimizing time and costs associated with vacant positions. Unfortunately, most organizations lack not only a consistent and holistic view

of the workforce but also the necessary analytics to perform workforce optimization.

April. J. et al (N.A), in their paper “Strategic Workforce Optimization: Ensuring Workforce Readiness with OptForce” states that CEOs and other business leaders in the boardroom has consistently identified “attracting, retaining and developing talent” as an urgency as well as a topmost corporate challenge for the future (Talent Watch,2011 and Mercer Global Business Challenges Survey, 2008). The top leaders recognize that an organization is good as its talent, and the success of every firm depends upon having the right people in the right place at the right time and for the right cost – a concept referred to as readiness. Attaining a high level of readiness has always required the ability and aptitude to anticipate and promptly respond to changing workforce requirements, and to allocate the necessary capitals as effectively as possible in meeting those needs. Workforce planning is defined as the business process that assists in the identification and exploration of what an organization will need in terms of the future size, type, and quality of the workforce in order to achieve its future goals and objectives. The goals of the organizations become more strategic and long-term than those of workforce optimization and labor scheduling, resulting in an optimal, short-term program of its prevailing resources.

Naik (2012) in her research “Impact of Talent Management on the Performance of an Organization with Special Reference to ABG, Pipapav, Bharati Shipbuilding Industries” is of the opinion that talent management aims mainly to improve the potentials of the employees that make valuable difference in the organization and managing that talent ultimately improves the organizational performance. Furthermore, it points out that talent management not only means moving talents upwards in organizations but also in making sure that organizations put those talents that are best situated at the position. Also, it has been deemed important that talent management should be embedded in the organizational culture as well. The present-day challenges and predicaments that are cognate to talent management are the emergence of both the knowledge society and economy. Naik (2012) also says that knowledge represents the major resource for economic life and growth. She argues that not only (potential) leaders have important knowledge, but other employees at all levels and in all departments of the organization own it as well. Hence, a shift towards multiple pipelines is of growing interest. Organizations presently are also in the pace of change of employment relation. Previously, the employment relation was based on life-long employment, but, today, the young employees are demanding more challenging work, with substantive rewards and opportunities to develop and learn. The look on the employment seems to be more individualistic. Hence organizations need to manage their talent taking into consideration several groups of the workforce that are becoming more and more demanding and with the value their own development. With the world

becoming more international, it has severely influenced the way business is to be conducted. This has caused an increase in complexity and uncertainty. Organizations today have come to realize that conducting business around the world depends on the quality of top talent within the organization. But this talent, however, is becoming further mobile and these talents need to be managed and coordinated globally and with this comes increased in the diversity of the workforce. Thus to face the competition organizations needs to become more generic as a shortage in labor supply will occur, which forces organizations to make full use of all talent available. Therefore, organizations are becoming more diverse in terms of workforce composition. Hence the study has revealed that it has become very important for organizations to think about the question whether a single pipeline approach to talent management is still sufficient for organizations to ensure viability. For organizations, to compete economically, a performing and motivated workforce are crucial. The existence of multiple pipelines will lead to an increase in individual performance and motivation ultimately leading to an increase in organizational performance. Therefore managing talent has become crucial for organizations, because if talents are not placed in the right positions, the organization will lose value and competitive advantage, particularly in today's globalized economy.

Ashton, C., & Morton, L. (2005), in their paper, “Managing talent for competitive advantage” says that talent management is more than just a new term for long-standing HR work or just the next “hot new thing” for HR practitioners and managers to get involved in but became a strategic imperative

for many organizations. McKinsey (2004) in their Global Survey of Business Executives: McKinsey & Co, New York, research report reveals that 75 percent of corporate officers are mostly concerned about talent shortages and the Deloitte report (2003) states that retaining the best talent is a top priority for 87 percent of surveyed HR directors. Thus need for talent and its expert management is driven by macro trends including the new cycles of business growth often requiring different kinds of talent, changing workforce demographics with reducing labor pools and, therefore, a talent squeeze, more complex economic conditions which require segregated talent and global focus on leadership which is now permeating many levels of organizations. Organizations in the present day deeply acknowledge that talent needs to be aligned with overall business strategy Globalization has forced the firms to be on the edge hence the emphasis on talent management is a must to produce the innovative and creative talents that are needed in bringing new products to market. As business drivers' changes, the organization talent should be fluid thus gaining the competitive edge. Aston & Morton says that in order for the organizations to stay on the edge talent Management needs to be integrated systematically. And using this integrated system managing the talent becomes more strategic differentiator rather than a standard set of HR processes i.e. if the right conditions, context, timescales, and offerings exist in the first place. Thus, system integration and alignment will ensure that Talent Management efforts are rational and fit for purpose thus increasing the performance of the organizations.

Lockwood N. (2006), thinks that effective talent management can be accomplished by helping with change management, influencing strategy and a host of other value-added activities that impact effectiveness. With a fiercely competitive marketplace, talent management has become a primary driver for organizational success. Talent management is basically an implementation of integrated strategies or systems designed to increase workplace productivity by developing improved processes for attracting, developing, retaining and utilizing people with the required skills and aptitude to meet current and future business needs. To gain competitive advantage, Talent management becomes the essential driver and the demand for human capital drive talent management. Talent management strategies mainly emphasize on five primary areas: attracting, selecting, engaging, developing and retaining employees. Although pay and remunerations initially lure employees, top-tier leadership organizations focus on retaining and developing talent.

An article of SAP Success factors (N.A), Talent Management Strategy to Create a Higher Performing Workforce likewise concurs that administrators and HR administration have constantly centered on essential ability administration—gaining, enlisting and holding capable representatives. Be that as it may, to drive to the ideal statures of accomplishment, the present business pioneers

must draw in the high performing workers. The way to mixing a workforce to significance is to adjust the ability administration to organization technique, characterize steady initiative criteria over every useful region, and recognize particular capabilities (explanatory, specialized, instruction, encounter) to develop for proceeding with development. The best ability administration design is completely lined up with the business' vital arrangement and general business needs. The objective arrangement is a capable administration apparatus that clears up work parts for singular representatives, as well as exhibits continuous estimation of your representatives to the association. At the point when a worker is occupied with their work through the objective arrangement, more noteworthy representative proprietorship is made for organization's definitive achievement thus ending up more dedicated to the association and accomplish larger amounts of occupation execution.

An exploration directed by Stahl G.K et. al (December' 21, 2011), on Six Principles of compelling Global Talent Management which in included in MIT Sloan Management Review (2012) agrees to the way that one of the common and hardest difficulties looked by organizations worldwide is constructing and maintaining a solid ability pipeline. Not exclusively do organizations need to acclimate to moving socioeconomics and work drive inclinations, yet they should likewise manufacture new capacities and renew their associations — all while putting resources into new innovations, globalizing their operations and battling with new contenders. Inside consistency in ability administration

rehearses must fit with its general business key objectives is the key, as organizations, for example, Siemens remember it. The scope of ability administration issues looked by the multinational organizations today is amazingly expansive. Firms must enlist and select capable individuals, create them, deal with their execution, repay and compensate them and endeavor to hold the most grounded entertainers. Each association must focus on each of these ranges, to increase upper hand with the assistance of ability administration by recognizing the key exercises (for instance, enrolling and preparing) and afterward actualizing "accepted procedures." The fruitful organizations should likewise hold fast to six key standards: (1) arrangement with the system, (2) Inner consistency, (3) social embeddedness, (4) Administration inclusion, (5) An adjust of worldwide and neighborhood needs and (6) business marking through separation.

3.4: WORKFORCE OPTIMIZATION

Although the economy is seemingly improving, there is still a pressure on the organization to improve customer satisfaction while reducing internal costs. Hence strategically management of Talent is not enough. To make the policies and strategies for optimal management of talent Workforce optimization is a must. Managers face challenges in ensuring that they have hired the right number and best-skilled team, providing the employees with most appropriate training and preparing employees to handle client demands efficiently.

Technopedia describes Workforce optimization as a tactic which is applied in the business that majorly emphasized on maximum client satisfaction and profits with nominal operational expenditures which is reinforced by assimilated technologies, cross-functional methods, and mutual objectives. Workforce optimization offers and supports the organizations by providing crucial data on the performance of the employees. It has been well-thought-out as the next logical change to analyze and manage the workforce and operational efficiency in order to escalate the consumer experience. Workforce Optimization (WFO) is an exercise of filtering the overall efficacy of staffs at an organization. This is by and large achieved by monitoring the movement of a specific state of affairs and then aligning the right number of employees with the projected motion.

The research report of International Customer Management Institute (ICMI) also concurs with the overall notion of workforce optimization (WFO) though it may seem daunting ultimately success is readily achievable. It is highly important for leaders of the organizations to work with their current service providers and understand the additional WFO components that are available from them. The investment into workforce optimization is not a luxury anymore, but a necessity. Every organization's main objective is to improve customer satisfaction and hence enhancing the workforce optimization helps in

providing ultimate customer satisfaction. ICMI states that in doing so, certain parameters have to be taken into considerations like workforce management, quality management, coaching management, performance management, analytics etc.

An article by Adecco on Five essential Matrics for better Workforce Management also agrees to the ICMI report. It adds that tracking these workforce metrics benefits the organization's to get more out of the team. It has often been stated that "what gets measured gets done." And it is very true sentiment when it comes to measuring the workforce performance. A clear and current picture of the value the employees' contribution is needed to be checked and how they impact the bottom line. And to make sure that the workforce is as optimized as possible, tracking these five metrics like productivity, retention, revenue per employee, the total cost of workers, and effectiveness ration becomes very important.

Although Workforce optimization enhances the organization's performance positively, one cannot neglect the humans as a resource as well. The human resources are a vital asset to the company and hence managing talent becomes the crucial aspect of the HR department. Lockwood N. (2006), Manager HR Content Program at Society for Human Resource Management states in her research report quarterly that in present global economy, companies must constantly invest in human capital and as a business partner, HR leaders need to work closely with the senior management in order to attract, hire, develop

and retain talent. Organizations can increase the performance of the business by properly managing the current workforce talent that already exists in the firm.

April. J. et al (N.A), in their paper Strategic Workforce Optimization: Ensuring Workforce Readiness with OptForce states that CEOs and other business leaders in the boardroom have consistently identified “attracting, retaining and developing talent” as an urgency as well as a topmost corporate challenge for the future. The top leaders recognize that an organization is good as its talent, and the success of every firm depends upon having the right people in the right place at the right time and for the right cost – a concept referred to as readiness. Attaining a high level of readiness has always required the ability and aptitude to anticipate and promptly respond to changing workforce requirements, and to allocate the necessary capitals as effectively as possible in meeting those needs. Workforce planning is defined as the business process that assists in the identification and exploration of what an organization will need in terms of the future size, type, and quality of the workforce in order to achieve its future goals and objectives. The goals of the organizations become more strategic and long-term than those of workforce optimization and labor scheduling, resulting in an optimal, short-term program of its prevailing resources. Many organizations are doing workforce scheduling for a long time, and in most organizations, workforce planning is still in its infancy. The tools and analytics that are being

used to support these strategic HR decisions are not nearly as advanced as they are in other disciplines. For instance, there's no equivalent of a cash flow model or operations plan and thus making workforce planning task more enormous. The pace of transformation within the economies, industries, and organizations continues to increase speedily and labor markets continue to become more competitive and more global making the workforce become more diverse in terms of its demographics, expectations, and goals.

An Ovum Whitepaper on “Getting Workforce Optimization Right” (2011) explains that organizations are looking at numerous techniques to connect the data from different processes with the aim of meeting the customer requirements and to provide the customers with more effective services. Many of the above issues can be resolved by unified workforce optimization. Incorporated workforce improvement frameworks interface booking with approaching call volumes and convey customized, directed preparing in view of execution measures and expertise holes, organized by the positioning of business targets. When working together, these tools help managers to schedule and train agents more effectively, improving agent morale and customer satisfaction.

Although Workforce optimization and Talent Management are two main crucial aspects of increasing the Organizations performance, another vital area is the compensation strategy formulation. The whitepaper of TCS Designing and Measuring Human Capital Key Performance Indicators: The Balanced Scorecard Approach authored by Abhishek Verma (2014) states that most organizations today are struggling to cope with effectively measuring their workforce and calculating the human capital Return on Investments (ROI). The need of the hour is to align the human capital goals to the organization's strategic objectives and then identify, track and measure the key human capital performance drivers till the operational level, following a top-down approach. The approach must be to link the top line with the bottom line and then calculate the overall human capital return on investment. There are ten important and easy-to-measure human capital key performance indicators (KPIs) that should be measured and tracked by organizations on a regular basis, that describes the lists of the information and insights business leaders can use to make future decisions. The KPIs presented are represented as per the balanced scorecard and are classified as either predictive (leading) or reactive (lagging).

Each and every organization tailors and alter the models and forms a performance framework that unremittingly suits their needs. A continuous transformation is always needed to be prepared for the evaluation process. Employees' perception of the efficiency and the reliability of the performance

appraisal process is one critical element in deciding the acceptability of the process by them. The Human Resource department is responsible for managing the performance management system in every organization hence it has to take into consideration: the parameters for evaluation, processes used for identifying these parameters, the measurement approaches, frequency of the assessment of the performance management process itself in order to have a dependable and effective performance management system.

3.5: COMPENSATION STRATEGY

Rizwan (2010) explored that the modern organizations attempt to integrate the employee commitment and the performance level of the organization. To keep the employee's self-esteem and sense of worth elevated, rewards are the most contingent factors that are being used by the management of the organization. The performance evaluation and rewards are the two factors which are considered to be the cornerstone of the performance evaluation programs. So rewards are an essential part of compensation management as well as of performance evaluation program.

An Article Compensation Strategy: Setting Parameters to ensure Competitiveness (June 9, 2000) by The Human Resource Social Network, complies to the above statement by noting that traditionally, compensation was preserved as a payroll issue, with pay levels reflecting the Human Resource

department's insights of apt tie-in to market. Harts expresses that a worthy compensation strategy has been put together with the inputs of the senior executive and market survey for ensuring competitiveness within the marketplace by founding parameters to define the compensation for the employees. These grounded in three variables: *Employment market, competitiveness, corporate values - the absolute significance of pay modules*. This is the joined worth of base salary, benefits and annual bonus and long-term incentives. The crucial benefits of developing a compensation strategy are the fact that, by including top executive levels, it confirms that the pay structure will be aligned with corporate values and be interrelated to the corporate business design. As these factors are in place, keeping the variables up to date is fairly simple and upfront. Yearly assessment of the complete process is not necessary, although the data on which your strategy is based must be modernized frequently in order to guarantee the compensation package remains within the strategy parameters. If the firm embraces several distinct employee groups reflecting very different employment markets, a discrete strategy for each of them might be required.

A white paper of Visier (2013), advocates that today's HR leaders face unprecedented challenges in making the most of their human capital investments hence organizations needs to re-evaluate and re-invent their business tools and processes and most importantly make organizational changes

based on facts with insights into what changes will keep them competitive and successful. The paper also describes that the most commonly measured workforce metrics do very little to help HR professionals and business leaders to achieve the real insights into maximizing their human capital investments. Consequently, to settle on superior business choices in regards to the workforce, pioneers need to see the associations in their workforce information and afterward inspect complete workforce points. Thus the challenges of today's business environment require new and latest approaches to gain a competitive edge in the ever-shrinking world of globalization. Thus to gain a competitive edge in today's business environment, implementations of new workforce strategies and making confident decisions needs to be implemented thus making the HR leaders better and more insightful and having most trusted information. As change is the only constant in today's business world, workforce analytics is the insight to make the right change.

3.6 ORGANIZATIONAL PERFORMANCE

Sikora and Ferris (2014) state that effective use of human resource (HR) practices can prominently increase organization's operational and financial performance. Effective HR practice use (which includes practices such as the use of employment tests, linking compensation to job performance, employee attitude surveys, and formal employee communication programs) drives numerous firm performance improvements, including improved productivity, lower employee turnover, greater sales growth, and higher profits (Huselid,

1995). Consistent with these findings, other researchers described similar results showing that the use of these “high performance” HR practices is associated with improvements in firm financial and operational performance (Becker & Gerhart, 1996).

First, in some situations, HR policies described in detail by senior managers, actually may exist only on paper (Khilji & Wang, 2006; Storey, 1992). In these cases, the organization's HR practices may be outdated, poorly understood within the firm, and/or represent a poor fit with the organization's operating culture.

Next, while in most firms, the human resources department is responsible for the development of effective HR practices, the implementation of those practices ultimately falls to the firm's line managers (i.e., the firm's operating managers, including positions such as customer service, sales, quality and/or manufacturing managers). As a result, firms may attempt to use effective HR practices, but find that their line managers vary in the extent to which they consistently implement the practices (Van Iddekinge et al., 2009). Similarly, Wright, McMahan, Snell, and Gerhart (2001) noted that many firms fail to meet top performance levels because line managers failed to implement the HR practices developed by the organization's HR function.

HR implementation is a key link between the development of effective HR practices and the resulting employee and firm performance outcomes. By featuring the significance of social setting factors in molding HR execution, this paper gives a solid construct supporting extra work in light of this vital issue. Expanded comprehension of these variables is critical to a complete HR– firm execution show. Moreover, this understanding additionally furnishes HR directors with the knowledge expected to enhance HR's hierarchical effect. (Sikora and Ferris, 2014)

Stiles and Kulvisaechana watched the positive connection between the human asset advancement and authoritative execution as per the substantial and extend assemblage of writing. Human Resource management a free and immaterial variable, advertise esteem relies upon impalpable variable. Shih, Chiang, and Hsu watched that the piece of the system of human asset advancement is holding and selecting the perfect representatives. The agreeable objectives of the associations can be shared and connected through information, worker's ability and capability hold by the association through preparing and empowering condition. Extension in profitability and business execution grow the Future returns. Future profits depend on the representative's aptitudes and capacities. Harder consider the effect of resourcing and development on the worker's state of mind which incorporate inspiration, fulfillment, and duty. Workforce preparing and advancement and authoritative improvement add to

releasing human mastery and to upgrade execution. Hierarchical execution and profitability are emphatically associated with far-reaching preparing exercises. The viability and effectiveness of open part rely on the positive future arranged worker advancement. The authoritative execution relies upon the preparation and advancement of human asset and the association burns through a great many cash for this reason. Authoritative execution relies upon the worker improvement since representative advancement upgrades learning base of the association.

3.7: HR ANALYTICS: A PANACEA

Kinley N and Ben-Hur S, (May 9, 2013), in their article Turning Talent data into Talent intelligence, said that a decade ago Mckinsey declared that the war for talent was coming and his statement seemed to be right. Globalization and shifting population demographics has caused competition for talent is growing and making it harder than ever for a business to find the talent they require. Realizing this problem every organization is turning into talent management and driven to invest most notably. The article states that as demand for better talent management is growing hence organizations are becoming more data – led hence making people data become currency and Workforce Analytics need for every organization. The emergence of latest IT software Workforce Analytics helps to gather, manage and use talent information more effectively than ever before. These data have helped the senior level management to gather information about their people with help of these information future decisions

is being made. The article states the example of how Google has become the market leader and its way ahead of the curve when it comes to people data. The system has enabled Google to develop a comprehensive database that captures the information about current employees' attitude, behavior, personality, biographical information and job performance enabling Google to develop an algorithm for predicting applicants which are most likely to succeed. By using Analytics in the organization talent management has become easier. This information has helped in succession planning, managing talent pools, managing talent 'on demand' finally making the talent management streamlined and simple.

The book Moneyball: The Art of Winning Unfair Game by Lewis (2004) has provided one of the greatest examples of how data analytics has radically shaped the way we understand how the organization works. The book describes how the General Manager Billy Beane of Oakland Athletics Baseball team utilizes data to analyze and predict baseball player's performances. By using Analytics Beane assembled a competitive team with cost a quarter of the player paid by the New York Yankees but his team ended up winning a same number of wins as its rivals the New York Yankees but with less than half of its rivals cost. By using and relying on metrics Beane predicted the number of wins and by using players whose skills were not recognized by others he built a team making them unpredictable players. By using Analytics for his recruiting strategy Beane changed the recruitment tactics for the world.

Chaudary, Subramaniam, Sinha, and Bhattacharya (2012), also suggested that HR Analytics can be used for many HR Value chain elements such as recruitment, performance, development and transitioning as well. The same statement was concurred by Mondore, Douthitt and Carson (2011) where they stated that HR analytics can be used in line with HR processes of selection, onboarding, performance management, succession and talent planning and employee engagement as well.

Lawler, Levenson & Boudreau, (2004) & Boudreau & Ramstad, (2006) stated that the notion of HR analytics can be defined as a method for understanding and measuring the pivotal relationship between HR practices and organizational performance outcomes (such as customer satisfaction, sales or profit), and for providing reasonable and dependable base for human capital decisions for the purpose of influencing the business strategy and performance, by applying statistical techniques and experimental approaches based on metrics of efficiency, effectiveness and impact. It basically aids the HR managers to predict the workforce developments within the organization and measure workforce performance drivers (FCTB, personal communication, January 31, 2012).

Berenó (2011) says that HR analytics empowers the managers to gather information about different talents and then develop a strategy of deploying

their expertise for new business events and leadership development. It further provides information on several important factors for the maximization of workforce analytics, which includes defined workforce challenges, consistency in data collection and making the platform easy to use. According to Beeline (2012) report, the workflow and productivity of workforce can be enhanced more efficiently and effectively if the human dimensions can be measured by the firm in a better way. Hence the human element can be quantified and understood as the essence of workforce analytics.

In the article *How HR Analytics can transform the workplace* (Nerney, C. 2014), describes how the ability to capture data and analyzing them has helped the organizations to both increases the revenues by better understanding and precisely targeting customers and cutting costs through the improved business process. He also says that HR managers are now able to analyze mountains of structured and unstructured data to answer the critical questions regarding workforce productivity, the impact of training programs on performance, predictors of attrition and also able to identify the potential leaders of the organization.

Visier Inc (2012) suggests that HR professionals can play a more proactive role with HR analytics in their organizations helping them to direct the senior

management and hiring managers in connecting the dots between their company's overall performance and investment in their workforce.

The report of Price Waterhouse Coopers (PwC) (2014), states that HR analytics has transformed the world of HR. The HR department that uses the analytics evolves into a strategic partner and achieves sustainable competitive advantage for their organization.

Another article by Beeline (2012) Workforce Analytics, how to define measure and drive productivity in today's organization, describes the standard to identify the people who bring the most value and to cultivate and motivate is satisfied by HR analytics. The challenging economy in today's world is forcing the organization to have its HR policies and strategies align with its overall business goal to gain a competitive edge over its opponents.

The white paper of TCS, "Designing and Measuring Human Capital Key Performance Indicators: The Balanced Scorecard Approach", Abhishek Verma (2014) articulates that most of the organizations today are struggling to survive with effectively measuring their workforce and calculating the human capital Return on Investments (ROI). The need of the hour is to align the human capital goals to the organization's strategic objectives and then identify, track and

measure the key human capital performance drivers till the operational level, following a top-down approach.

Matt Straz, Founder, and contributor of Namely (October 19, 2015) gave a statement in in the article 3 reasons HR Needs to be involved in Planning a Business Strategy that in the present-day business world, the only persistent is transformation especially when it comes to HR. The human resources department of yesterday used to largely focus all its attention on mitigating compliance and employee-related issues, and now it is long gone.

Jason Averbook the CEO of Marcus Buckingham Company explains that even though years have passed, but still many organizations are running HR in the same old way namely focusing on risk, compliance, transactional side. But in today's business world there is a whole new era that needs its attention like unions and pensions, transparency in workplace etc. Business leaders today realize the unique insight that originates from HR and the vital role it plays in strategic business planning. A new HR software has come named HR analytics. This latest IT software HR analytics has made everyday processes that use to be headache-inducing tasks much less painful. The use of this latest technology has literally put the human back in human resources by freeing up more time to spend in strategizing with the company's leadership, finding and securing top talent and working with employees.

Dr. John Sullivan (February 26, 2013) in the article How Google Is Using People Analytics to Completely Reinvent HR discusses how Google has moved up from being the youngest to be the top business leaders in the present market. This has been possible as Google has used people management strategy that is the result of its software “People Analytics”. New path” firms dominate by producing continuous innovation. Google has learned that continuous innovation cannot occur until a firm makes a strategic shift toward a focus on great people management. A vital concentrate on individuals administration is important in light of the fact that developments originate from individuals, however, advancements can't be amplified just unless the associations are fit for enrolling and holding these trailblazers and interminable help additionally must be given to them awesome directors and a situation that backings development. The straightforward establishment of "individuals investigation" approach is that exact individuals administration choices are the most critical and impactful choices that a firm can make. A firm can't just deliver predominant business comes about unless the administrators are settling on exact individuals administration choices. Every single one of business choices is made by a representative. Thus the contract and holding of these workers need to oversee all the more precisely and for doing as such appropriate information is required, else it can just expect that they will settle on average choices in each of these imperative business territories, and also in individuals' administration choices. Consequently Google subsequent to changing is a system in receiving People Analytics has turned out to be the best quality driving the association to wind up noticeably the market pioneer in the limited capacity to focus time.

Bruce Fechey-Lippens, Bill Schaninger, and Karen Tanner (March 2015) in the article Power to the new individual's investigation distributed in Mckinsey quarterly says that strategies used to mine purchaser and industry information would now be able to enable HR to handle representative maintenance and disappointment issues. The most recent information and investigation buzz that is originating from the field of cutting-edge HR examination, where the utilization of new strategies and new intuition to ability administration is winding up more standard. The suggestions are sensational in light of the fact that ability administration in numerous organizations has customarily rotated around individual connections or basic leadership in light of experience also chance shirking and lawful consistency as opposed to profound investigation. In any case, these progressed examination gives a remarkable chance to human-capital and HR experts to position themselves as truth based key accomplices of the official board, utilizing cutting-edge procedures to enroll and hold the colossal administrators and incredible trend-setters who so regularly drive unrivaled incentive in organizations. Many driving associations are as of now utilizing propelled HR investigation effectively in certain ability administration territories. A main human services association, for instance, has utilized these strategies to create more than \$100 million in investment funds while at the same time enhancing the engagement of its workforce. The association found that exceptionally factor and unequal remuneration levels were exasperating workers and driving high rates of whittling down. Once the information investigation had distinguished an ideal least and most extreme pay edge, the medicinal services gather expanded the engagement and profitability of its representatives along these lines lessening their rate of wearing down as well as its aggregate pay consumptions. Another

organization likewise diminished its maintenance rewards by \$20 million and worker whittling down with the utilization of prescient behavioral investigation. Through this procedure, the organizations have discovered that constrained interest in administration and representative preparing, and lacking acknowledgment, were the principal drivers of staff surrenders. Costly maintenance rewards, to which the organization had turned in franticness, were basically an inadequate and exorbitant Band-Aid. Many organizations customarily endeavor to handle maintenance issues by leading top to bottom post-employment surveys. The imperative preferred standpoint of the new investigation procedures over that approach is that they are prescient, as opposed to responsive, and they give more target data than the more subjective discoveries of a one-on-one dialog.

Emma Snider (September 2012) in the article Ready or not, here comes HR analytics states that just as big data has revolutionized marketing and finance, industry experts say that HR analytics workforce metrics will help companies glean information about their talent pool transforming human resource world. HR experts have for some time been information gatherers, hoarding and monitoring representatives' close to home data, compensation rates and the yearly number of retirements. But the HR professionals were not able to use these data. Now in order to grasp the potential of HR analytics, HR managers need to become data interpreters. HR manager who has good data interpretation skills are able to spot trends. After trends are identified, they can come up with a course of action based on the data by digging down on what the data is showing. This software not only allowed the HR professionals to identify the problems but also to analyze the historical data and make wiser choices and strategic decisions

based on data evidence. The historical data also helps to collect information about the workforce by looking holistically and predict who to hire and who will make a successful leader in the future. The use of this latest IT technology not only the HR can predict problem trends but also can create what-if scenario planning.

In the article, A guide to HR analytics in the Tech Target Search Financial Applications agrees to the above article that Human Resources has been pacing towards the limelight getting a support from HR analytics. In the early times, the prime objectives of the HR was mainly collecting of data and keeping track of employees' personal and professional data, such as payroll, health benefits, and performance reviews. Now, the new tidal wave of technology has touched HR's shores and is carrying it into deeper ends where it can scrutinize data to play a more active role in the organization. HR metrics are not the same as HR analytics. HR managers classically use metrics to mainly measure such data as turnover rates and sick days. With HR analytics, they can gauge employee engagement and whether or not workers have the skills to reach company goals. HR representatives can now exchange ideas with business leaders, by finding out what they need and hire accordingly. HR analytics allows human resources to interpret data, recognize trends or issues, and take proactive steps with different departments to keep the organization running smoothly and profitably. HR investigation has pushed HR into more dynamic and included a part in associations' arranging and destinations and turn into a key accomplice. Associations are additionally now turning their consideration regarding worker engagement with HR examination, getting rid of inconsistent reviews and utilizing conclusion investigation to quantify

engagement progressively. HR investigation programming has enabled the associations to demonstrate their workforce and measure representative engagement with estimation examination. Besides data quality and analysis benefits, analytics is critical to the continued relevance of the HR profession because employees are not always willing to be forthright when they answer workplace surveys provided by their employer, the data is not always reliable. With the help of the data from the customer relationship management (CRM), HR can assess if the employee is really performing the job. Social media and sentiment analysis are tools that organizations use to measure customer satisfaction, and they could prove just as useful in measuring employee engagement.

Tanmay Bhandari (January 31, 2016), in the blog *Redefining HR through data analytics*, gave his opinion that HR analytics can form a backbone of human resource function of all organizations independent of the sector in which it operates. HR measurements which are otherwise called ability examination or people groups' measurements is a refined utilization of information mining and information investigation systems connected on individuals related information. HR investigation is a basic approach to quantitatively gauge the spending and the result of worker engagement projects and HR frameworks to gauge the viability of different HR activities. The application gives the organizations the ability to gauge year on year correlations on different parameters. HR investigation empowers the organization with capable experiences to adequately oversee representatives to achieve the business objective rapidly and with high profitability. Difficulties possess large amounts of this field as to recognize

what sort of information should be caught, put away and handled and how to fabricate the model and foresee capacities to expand the degree of profitability spent on its HR. HR investigation discovers its application in the different business capacities. The center elements of HR like enrollment and preparing, mergers and acquisitions, outlining remuneration structure, enhancing execution evaluation forms are altered by applying examination to the authentic information. HR examination encourages us to discover issue ranges, research on the underlying driver and issues encompassing these issues and utilizing information mining and prescient investigation work process will empower the HR experts to open the responses for various inquiries and pick up experiences from data and take suitable and significant choices. A portion of the applications are excessively build up most proficient enrollment and preparing process, to configuration profession improvement activities, instrumental in organizing and positioning the candidates in the request of their activity fit to the part, to gauge human asset necessity and outline a best intend to fill the open parts, to keep up high work compel use proportion with a specific end goal to boost the arrival on spent on HR, to augment workforce inspiration to interface them to vital and money related objectives of association to guarantee high business execution, to cut down the expenses on HR and streamline the budgetary spend on preparing and enlistment, to control representative steady loss by recognizing the explanations behind workers to leave the association and to plan strategies to cut down weakening, and to upgrade the worker installment, advantages and pay structure and expand his level of fulfillment in the

meantime sparing expense to the association. The specialty developing zones of HR Analytics are worker estimation examination and representative misrepresentation administration.

Susan LaMotte (2013) likewise her blog says that everybody has been discussing HR investigation. The enthusiasm for utilizing enormous information, investigation, and Moneyball in HR and enrolling is increasing critical steam. The utilization of examination in HR, for example, creating relationships between's representative execution, maintenance, statistic and appraisal information to settle on information based choices is positively a best practice, yet settling on information based choices doesn't have anything to do with "enormous information" unless the information being broke down meets certain criteria. The assortment part of enormous information essentially alludes to the blend of information sorts and sources (e.g., following sensors on representatives) and shifting degrees of structure, from organized to totally unstructured (free content as interpersonal organization refreshes, proposals, grants, supports, blog entries, remarks, official statements, declarations, and so forth.). It truly isn't the volume of information that represents the preparing challenge and requires the particular innovations. The organizations have been handling vast volumes of information for more than 10 years now, with huge information stockrooms driving business knowledge, revealing, and examination. It can be envisioned that it's truly the assortment and speed parts of huge information that require the utilization of particular data handling

arrangements and all the more particularly unstructured information that represents the innovation challenge. So regardless of how substantial the information might be this information is utilized to control examination and to create bits of knowledge. Another critical angle on how Analytics has changed the HR world in the region of enlistment is appeared in Moneyball: The Art of Winning Unfair diversion. It is a magnificent delineation of viable and true cases of utilizing information to create non-natural and noteworthy bits of knowledge into what makes an awesome worker otherwise known as ability investigation or workforce science. The pith of "Moneyball" lies in utilizing information and insights to "arbitrage miscounted pay rates" to stay away from exaggerated abilities/encounter, and to distinguish underestimated aptitudes when building groups to build up an upper hand without having to "purchase" costly ability. On the off chance that HR can use the information to recognize and procure individuals who can play out the same or superior to individuals who are more costly to obtain, at that point the Moneyball idea applies. With the assistance of utilizing the investigation, HR experts can contract and prepare, a specific sort of individual with no earlier particular industry or part encounter, who, once prepared, can beat individuals in a similar part who have 5-10 years of particular part/industry encounter, at that point one might say that they are viable "playing" Moneyball. The establishment of the Moneyball idea depends on utilizing information, insights, and examination to accomplish a type of work arbitrage which distinguishes underestimated abilities when building groups to build up an upper hand without having to "purchase" costly

ability. The utilization information and examination help in cost investment funds as well as expanded execution that will bring about a similar cost. The investigation is the revelation and correspondence of significant examples of information, which can be accomplished with any informational index whether enormous or little.

Bhaskar Gupta (March 16, 2015) in his article Analytics in HR – Data-Driven Decision Making in Human Resources expresses that the capacity to catch and effectively accumulate bits of knowledge from their information have driven many endeavors worldwide to streamline their procedures and lift their development. Information examination has turned into the standard crosswise over capacities like Marketing, Retail, Operations, and Finance. Be that as it may, an area as essential and as omnipresent as Human Resource has woken up to information investigation as of late. The selection rate is still low with the required aptitude missing in many associations, yet there is sufficient buzz around this zone. Workforce Analytics empowers the HR Manager to go well beyond her gut-feel and causes her to make choices in light of no-nonsense information. More than regularly the vast majority of the information that is required for such an examination is as of now there inside the association. Age, scholarly history, socioeconomics, related knowledge, training attempted, execution appraisals and numerous such information focuses are now accessible with the HR division. This inside information is joined with outside

information sources to get an entire picture. HR Analytics helps in assembling this information, wed it with pertinent outer information and enable HR Managers to make applicable inquiries in order to take better choices. Numerous associations that have conveyed HR Analytics have effectively received the rewards.

Suzanna Colberg (March 26, 2016) in her article about How 'Individuals Analytics' is Redefining the Way We Work, Live, and Hire says that the requirement for individuals examination inside an HR work has been a talk that has been on the table for as long as quite a while. Broad advanced and social changes in the cutting edge working environment have started to reshape and reclassify both the structure of associations and additionally the way of life of the work environment and, much of the time, the work itself. Presently like never before, associations are depending all the more intensely on information to discover, procure, and oversee ability. Ben Waber brings up that even the scarcest changes in conduct – and in working environment methods and conditions – enable specialists to be more joyful, more beneficial, and perform better. Waber likewise composes that People examination has changed the comprehension of socialization in the working environment, the effect of office format, and even ideas as 'delicate' as inventiveness." Analytics can possibly drastically enhance the way we work. What's more, subsequently an expanding number of associations are putting an accentuation on actualizing and creating

"individuals investigation" inside their plans of action. Likewise in the current Deloitte University Press' production, Global Human Capital Trends 2016, it talks about how these progressions and the expanding significance of individuals information among associations has expanded. Today 77% of all associations trust individuals examination is imperative and 82% of HR respondents see the investigation as vital or critical lastly 69% of representatives see the investigation as essential. HR groups appear to acknowledge as well as grasping the reconciliation of HR information and individuals examination into the inside procedures of the business, and in light of current circumstances. In circumstances that require high-volume enlisting for bringing down talented work, the utilization of information-driven contracting evaluations to winnow the candidate pool enhances work residency by 15 percent. Consequently, there's no contending that mechanized frameworks and the information they deliver can sort and clear up data that may some way or another overpower even the most productive and compelling HR and enlisting offices. The information gave by devices like procuring evaluations in conjunction with cloud-based HR frameworks that gives a more far-reaching review of incorporated HR information, in the end, can enable HR to staff and contracting administrators settle on the workforce-based choices with a higher level of precision than at any other time. Investigation in the human capital administration is being utilized as a part of various distinctive zones in organizations to drive positive energy. From using pre-enlist evaluations that speed up the procuring procedure to recognizing

potential authority applicants, information assume an undeniably indispensable part in driving alluring results no matter how you look at it.

Additionally, the Deloitte examine gives a few cases of how individuals investigation particularly is driving associations into the future by applying progressed examination to HR administration choices. On an expansive scale, individuals investigation is distinguishing better-fitting applicants, foresee pinnacles and troughs in work processes, and add to building more grounded organization societies. In spite of the fact that associations are still in the beginning periods of receiving and executing innovation that enables them to use information in new courses among their workforces, it is clear these patterns are picking up force. A few associations have even started to include parts like "initiative advancement pro" and "boss experience officer" to enhance client encounter both among outside clients and also inward representatives. For productive and compelling HR staff and business accomplices, HR measurements and examination are ending up progressively basic, and will soon be important in advancing business results. To be sure, this information shows uncommon bits of knowledge and open doors for supervisors and authority over all business perspectives.

In the blog *People Analytics All Set to Redefine HR* (March 15, 2016) by TCG Hamilton, articulates that workforce does matters to an extensive extent in any

association and in this way, people related choices consistently take the lion's deal of its HR-related exercises. Earlier, the vast majority of these selections were subjective to a view of an individual to understanding, thoughts, and drives. Naturally, the larger part of them was stormed with blunders, while many were prone to disappointment. However, these things are previously, on the version of the developing prominence of individuals' exploration. Today, the knack for securing and ability to manage and understand must be information-driven and endorse driven – individuals exploration settles on these choices feasible. Along these lines, ability experts would now be able to put a conclusion to all instincts, impulses, and presumptions in HR hones. Associations crosswise over geologies and businesses are steadily grasping this most recent HR idea. Deloitte University Press' 'Worldwide Human Capital Trends 2015' has uncovered that 3 out of 4 organizations acknowledged the significance of individual's investigation. In a current heartbeat overview, an incredible 86% of PwC Saratoga members have uncovered that building or propelling their kin investigation process is a key need for the coming 1-3 years. Further, 46% of these associations as of now have a people examination work. In this way, naturally, individuals' investigation is becoming the dominant focal point in the cutting edge HR domain. These days, an amazing number of organizations are utilizing the energy of individual's examination. For instance, Google is utilizing examination to find out about the effect of each meeting and the wellspring of enrollment. Essentially, BP is making utilization of investigation to survey its preparation. Likewise, organizations like Facebook, AOL, and Pfizer are

breaking down the elements relating to ability maintenance. In spite of these inviting changes occurring in the HR space, a large portion of the organizations is yet to utilize individuals examination in their everyday work. The absence of aptitudes in individuals investigation is one of the prime reasons. Despite the fact that investigation projects can give a higher ROI, the vast majority of HR pioneers confront trouble thinking of a legitimate arrangement. As per Deloitte, more than 80 percent of HR experts are less capable of utilizing examination. While HR groups in the greater part of the organizations are yet to get the hang of individuals' investigation, numerous confirmation and preparing organizations are entering the photo to fill in the hole – their projects have been concocted in perspective of the present market requirements. Seeking after such a program will help any HR/ability proficient form his/her profession in individuals' investigation.

Jyotiranjana Hota and Debjani Ghosh (2013), in the research paper Workforce Analytics Approach: An emerging trend of workforce Management states that in the recent scenario, workforce assessments should be reinforced by workforce data and analytics instead of fully reliant on gut feelings and drives. Harvey (2012) specified that the global economic catastrophe has taken a sudden interest in the region of Workforce analytics. For the period of the preliminary application of Workforce analytics, departments were ill-prepared for the sudden and unexpected necessity for the thorough analysis and reporting of workforce expenses and related events. As per IBM Global Services Report

(2009), the foremost concern is the way in which organizations of all sizes are compelled to take their decisions of the workforce during economic crises. Many firms have only a fractional understanding of the necessities of their current and future workforce. They lack awareness to classify and recognize the top talents and retaining them. So they are not capable to segregate their worth in the market. People are the utmost imperative asset of any company. Global Chief HR Officer for Ernst & Young expressed his thoughts at a latest global workforce meeting: “Holding onto key talent is like trying to keep frogs in a wheelbarrow”. Hence capabilities and skills of the employees have always given an edge for advancements in the competition. Deloitte Consulting treated Workforce analytics as performance analytics which is a new class of business intelligence that ties human capital management to financial performance. Ringo (2012) explained that the organizations that use workforce analytics have the most involved and promising workforce and they bloom in challenging and demanding circumstances. Rouse (2012) articulated that workforce analytics is an amalgamation of philosophy and programming that applies measurable models to the expert which is related to the information, enabling venture pioneers and innovators to upgrade human asset management. It is possible to make overall and definite hiring decisions, identify the requirement for new positions, scrutinize and foretell current and future technological requirements and improve recruiting approaches with the use of workforce analytics.

Josh Bersin, Marc Solow, & Nicky Wakefield (February 29, 2016) stated in the report Global Human Capital Trend report 2016, that often, employees are overwhelmed with technology, applications, and a continual overflow of information. The research of Deloitte expresses that individuals jointly check their phones over 8 billion times each day, yet throughput is hardly climbing. In order to be liberated of the astounded workers and improve the application of HR which will be able to help manage this complication, HR must embrace design thinking, which sets the employee understanding and capability at the center. Design thinking changes HR's emphasis beyond the building of the programs and progress to a new objective: designing a productive and meaningful employment experience through solutions that are compelling, enjoyable, and simple.

3.8 SUMMARY:

As Bill Gates has aptly said “The best resources of my company goes out of the door every evening and comes back in every morning.” He and every successful leader worldwide understand the most important resource of an organization are its people. For it its people who since time in memorial have been contributing and plays the most vital role in the success or failure of an organization. All great management thinkers have been harping on the fact that managing workforce or human resource is the most vital, most crucial and the most difficult job for any organization. Theories and practices have come up and evolved to understand and better manage the workforce as it can be the game changer or the edge that an organization needs to overtake it competitors.

The latest being HR analytics which is considered to be the next big thing in the world of ever evolving HR. After thoroughly reviewing the literature, it can be inferred that managing human resources have been taken to the next level where HR is no longer just a function but it contributes to all the functions in the organization with a prime focus of enhancing the organizations performance. In the past organizations were unable to measure and quantify the contribution of their intangible assets i.e. their employees accurately. The emphasis of HR has at all times been just on collecting and reporting of the data about activities instead of outcomes, while the analyses are mostly very simplistic (e.g., limited analyses of drivers of outcomes). As a result, Ulrich (2010) stated that there is a need for HR to develop itself from descriptive metrics to predictive analytics. Today's HR leaders are faced with an unprecedented challenges in making the most of their human capital investments hence organizations needs to re-evaluate and re-invent their business tools and processes and most importantly make organizational changes based on facts with insights into what changes will keep them competitive and successful. To make a better business decisions regarding the workforce, leaders need to see the connections in their workforce data and then examine comprehensive workforce topics. Thus the challenges of today's business environment involve new and latest approaches to gain competitive edge in ever shrinking world of globalization. And hence, implementations of new workforce strategies and making confident decisions needs are in need of the hour, thus making the HR leaders better and more insightful and having most trusted information. As change is the only constant

in today's business world, workforce analytics is the insight to make the right change.

Demand for better talent management is growing, hence organizations are becoming more data – led hence making people data become currency and Workforce Analytics has become the need for every organization. The emergence of latest IT software Workforce Analytics helps to gather, manage and use talent information more effectively than ever before. These data has helped the senior level management to gather information about their people with help of these information future decisions is being made. HR Analytics is being used for many HR Value chain elements such as recruitment, performance, development and transitioning, selection, on-boarding, performance management, succession and talent planning and employee engagement as well. Hence it can be concluded that HR Analytics has in deed become the panacea for all the problems and challenges which the Human Resource function has been facing and proved to be the vital tool for gaining competitive edge in this fierce changing economy.

CHAPTER – IV

THE METHODOLOGY

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THE METHODOLOGY

4.1: INTRODUCTION

The methodology is the technique of discovering hidden answers to the taunting inquiry that starts the exploration and along these lines involves a critical part of any study. The research methodology that is chosen, needs for improving the reliability and conjecture of the outcomes. It ought to be practical, effective and flexible. This parity must be acquired by utilizing the appropriate methods for data collection. This chapter presents the research approach for addressing the gaps identified in the previous chapter. The chapter discusses the purpose and objectives of the study and adopted conceptual framework is presented to – guide the research towards fulfilling the purpose and objectives. Specific research questions are developed from the theoretical framework and presented a research strategy for answering those questions.

Research methodology is a vital instrument in determining the course of the research. The methodology used is mainly based on the sound premise giving it a lot of credibility to the research. Its role is mainly to validate the whole research especially in the case of applied research in social sciences where it lays a sturdy groundwork for all the future research works as well. The area of Human Resource Management is wide and is ever growing and changing

recently especially in the past decade hence an appropriate research method will only substantiate the current researchers but also, it will give substantial directions in case of all future research studies.

In this section of Chapter four, the researcher mainly deals with the practical research methodology which is used in order to complete the study. This methodology included several components: the methods used for collection of data; the techniques employed for the analysis of data; and the instrumentation used in the study. More specifically for each of the three components, the researcher here discusses: (a) data collection, which includes the format of the survey questionnaire and the approach used for the administration of the survey forms; (b) data analysis, which will include the stages of analysis, the computer resources used, the specific analytical techniques, and an overview of essential aspects of the factor analysis; and (c) instrumentation, which will include a discussion of levels of measurement, issues of validity and reliability, and the progressive development of the final survey.

4.2: STATEMENT OF THE RESEARCH PROBLEM

Resources are scarce. Hence every company wants to make optimum utilization of each and every scarce resource. Budgets are limited and hence everyone has their jobs cut out to make the best possible use of this limited resource. In order to achieve this, every business function has to reduce costs, increase revenue, maximize operational efficiency and emphasize on the strategic initiatives to

stay lucrative, sustain agility and achieve sustainable growth. One of the biggest challenges an organization faces is when it plans to launch a new product or services is recruiting of right people for the right job, in time for execution bearing the costs, when talent exists in the organization. Retaining the best talent is desirable for the company as it helps cut down on a lot of costs. So in order to effectively manage the best and existing talent, one needs to optimized compensation strategies so that a company can obtain a sustainable compensation policy. Moreover, it gets worst for any organization if their best talents join hands with competitors. So the bottom line is the companies cannot standardize but they need to customize their compensation strategies, tailor-made for each and every employee which will in turn help achieve greater organizational performance.

4.3: SIGNIFICANCE OF THE STUDY

HR Analytics is the latest emerging area in the world of HR. Worldwide organizations are using HR Analytics for making a better strategic decision. But in India, the concept is still new and very few organizations have started using HR Analytics for better workforce strategic decisions. Hence, very less research has been done in this area, which gives a lot of opportunities to explore and analyze its utilization and significance for organizational performance. Also, papers that are published are basically the whitepapers, which has given an

ample opportunity for conducting empirical research and explore its in-depth knowledge.

4.4. APPLICATION OF HR ANALYTICS IN INDIAN ORGANIZATIONS

Organizations around the world today are gradually becoming globalized and are being faced with defenselessness, vagueness, intricacy, and obscurity in the harsh business setting. Under such state of affairs, making a correct choices to gain and sustain competitive advantage are the purposes of every organization. Business analytics has arisen as one of the utmost imperative devices for addressing these goals. Cutting-edge research literature and survey reports by various organizations recommend the application of analytics for enhanced management of human resources (HR) in an organization. But the numerous study has revealed that the application of these is still insignificant in many organizations.

The rapid advance of information technology (IT) and its prevalence is the reality of the present-day. In the world of IT connected, people leave behind a trail of data after them. Organizations have started to grasp the concept that with the availability of the sophisticated technologies nowadays, they can make use these data to their benefit. This has recently fuelled the growth of business analytics (BA) in the business world. Business analytics can be defined as the “extensive use of data, statistical and quantitative analysis, explanatory and predictive models and fact-based management to drive decisions and actions”

(T.H. Davenport, and J.G. Harris, 2010). As Analytics is the usage of figures and organizations has been storing data linking to their employees for over years, thus these data can be used to drive human or fully preset assessments, supporting just about any business practice. Analytics are being used in countless features of the organizations viz. finance, sales, marketing, and supply chain and compared to these roles, the human resources function (HR) is clearly a lagged behind and is look upon as somewhat a late participant in using analytics. This is considered rather astonishing as HR is no stranger to data. Normally HR departments in every organization retain a wealth trove of data together from within and outside the organization. These data mainly includes employee benefits, compensation and performance management, incentive programs, recruitment and training data both from internal departments and external such as consultants, suppliers, vendors. Considering the magnitude of data residing within HR, it is rather a surprise that HR less keenly involved in analytics. A dynamic engrossment in analytics also means the involvement of HR employees in analytical activities. Since the use of analytics by HR in an organization is reflective of the HR professional's involvement, this study attempts to understand what can drive the acceptance of analytics in HR from an individual perspective: that of HR professionals themselves.

India, being one of the fastest emerging economies, is still in the infant stage when in it comes to the application of HR Analytics in their Organizations.

India, currently being the hub of IT industry is still lagging behind in adopting

the latest HR trends in global comparison. A survey conducted by Timesjob in August 2015, where 90% of the Indian organizations took part in the survey, only nearly 32% are using HR Analytics in their Organization. In view of this, research on the said area needs to be undertaken to study the existing picture of HR analytics in the Indian context and to identify the various aspects that influence the acceptance of analytics among HR professionals.

4.5. RESEARCH GAP

After the thorough analysis of the literature in Chapter III, it was found that the researchers, authors and even organizations whitepapers, they all talk about how HR analytics helps the HR in making strategic decisions. Also, most of the literature available is either survey done by consultancies or white paper of the organizations itself. Very few empirical researches have been conducted by the academicians and also mostly theoretical viewpoint is given on how HR analytics increase the organization performance. Hence an empirical study can be conducted which will enable the researchers to gather more information on utilization of HR analytics in the organization and also how it helps to increase the company's performance as well. And also the compensation strategy formulation with the help of HR analytics, no significant literature was found. Every literature has revealed that HR needs to align with an overall business strategy to achieve its overall goals, but no empirical evidence was provided on how these strategies are helping to enhance the organization's performance.

Also above literatures has also given evidence that if the workforce is managed properly then this retention of the talent helps the organization to gain a competitive edge over its competitors. Every piece of literature has pointed out how the analytical software will help the HR to become the strategic partner but no empirical evidence was presented in any literature whether adoption of HR analytics has helped the organization to enhance its overall performance or not. Also, no literature has talked about how to formulate a compensation strategy and also how HR analytics helps the manager to develop and formulate a good compensation strategy for better talent management. Hence, an in-depth knowledge can be attained with this study especially on designing and formulation of the compensation strategy.

4.6. OBJECTIVES OF THE STUDY

- 1.To study the influence of HR strategies on Organizational Performance when mediated by HR analytics
- 2.To study the relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two
- 3.To study the relationship between talent management and organizational performance when HR analytics mediates the relation between the two.
- 4.To study the relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two.
- 5.To study HR Analytics as a precursor to organizational performance

4.7. RESEARCH HYPOTHESIS

Ho: Influence of HR strategies on organizational Performance is not significantly mediated by HR analytics.

4.7.1: Sub Hypothesis:

Hypothesis 1: *There is no significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.*

Hypothesis 2: *There is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two*

Hypothesis 3: *There is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two*

4.8. **MODEL DESIGNED FOR HYPOTHESIS TESTING**

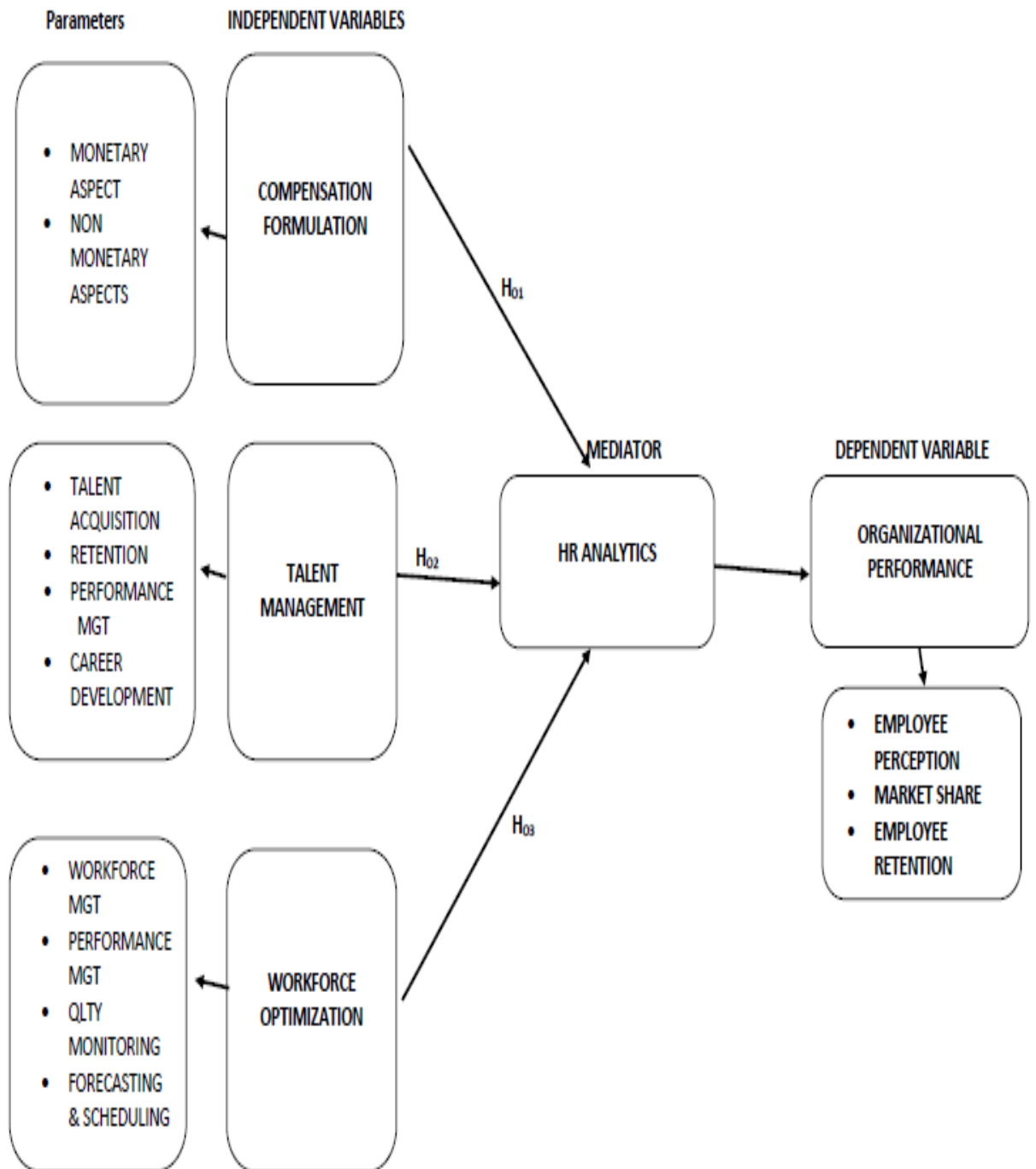


Figure 4.1: Proposed integrated conceptual model: Organizational Performance under HR Analytics

4.9. RESEARCH DESIGN

The research design is a framework for delineating the ways in which research proceeds by collecting the data and analyzing the same to interpret the results. It is an outline for the analysis and measurement of the data. The research requires Descriptive cum exploratory method that seeks to explore the relationship among HR Analytics, Organizational Performance, and compensation formulation. This type of study requires a research that does an in-depth investigation and description of phenomena, and systematical classification of the variables to construct and describes the attributes as accurately and precisely as possible.

4.9.1. TYPE OF RESEARCH

Based on the theories, concepts, and frameworks discussed in the literature review, an **Exploratory cum Descriptive research design** is applied to arrive at conclusions. As the research is seeking a new insight into the subject of HR analytics by asking new questions and trying to bring a new light into it, thus the Descriptive Research – an exploratory approach has been chosen. This is where research is trying to describe what is happening in more detail, filling in the missing parts and expanding our understanding.

4.9.1.1. RESEARCH APPROACHES

In this research, Descriptive Research approach has been taken. As the study requires in-depth details to fill the missing parts hence quantitative approach has been taken that will enable the researcher to compare and contrast the study of the current research problem. In this method, a standardized structured

survey questionnaire is administered in order to have a proper view and understanding of the problem.

- Quantitative research focuses on counting and classifying features constructing statistical models and figures to explain what is observed. In this method direct and structured, questionnaires and surveys are used for collecting the data.

Table 4.1: Descriptions of Research Dimensions

Theoretical/ Conceptual Scope	Influence of HR strategies effect on Organizational performance when HR Analytics mediates the relationship
Survey Area	Pan India
Selector Sectors and firms	<i>IT sector</i> – HCL, Mphasis, NTT data <i>Oil Sector</i> – BCPL, Indian Oil, HPCL <i>Banking Sector</i> – Canara Bank, Punjab National Bank <i>Insurance sector</i> – HDFC Insurance, Kotak Mahindra <i>Telecom sector</i> – Vodafone, Reliance Jio <i>Service sector</i> - IBM, Times facility Management, Dell International Services <i>Public power sector</i> – NTPC Ltd. <i>Retail sector</i> – Aditya Birla Pantaloons, Westside <i>BPO sector & KPO sector</i> – Infosys, Evaluserve.com Pvt Ltd, <i>Automobile Sector</i> – Continental Motors, Maruti Suzuki <i>Infrastructure & Construction sector</i> - Daelim industrial corporation Ltd, NCC Ltd. <i>Pharmaceutical Sector</i> - GlaxoSmithKline Pvt Ltd <i>Public Sector</i> – Central Works Commission
Time Frame of the study	
Type of Research	Descriptive cum Exploratory approach
Method of Approach	Descriptive Conclusive approach
Research Approach	Quantitative

Population	Employees of Indian Companies using HR Analytics
Sample size	N=500 employees of 25 organizations of 13 different sectors spread across India where HR Analytics application is available
Sampling Technique	Purposive Sampling
Sample Respondents	Senior Management, HR Managers, HR executives, HR Experts, Other Employees
Source for Collection of Data	<ul style="list-style-type: none"> • Self - administered standardized structured Questionnaires for the Respondents • Secondary data from the documentation, archival records, journals, annual reports video clips etc.
Measurement Variables	Compensation strategy, workforce optimization, talent management, organizational performance, HR Analytics
Tools & Techniques for data analysis	Structural Equation Modelling, Descriptive Statistics, Inferential Statistics, Reliability Testing
Scaling in Questionnaire Design	<ul style="list-style-type: none"> • Nominal • Ordinal • Interval
Reliability/ Validity Testing	Cronbach's Alpha

4.10 SAMPLING DESIGN

Sampling design is a concrete plan for drawing or selecting a sample from a given population. Sampling plan provides a way to select an object from the sampling frame. It refers to the method a researcher adopts in selecting a sample and the deciding upon the sampling technique.

4.10.1 SAMPLING UNIT

A sampling unit is an object for which the data is gathered. For this study, 20 employees from every level of management of 26 organizations spread across 13 different industrial sectors from various cities of India has been considered as a sampling unit.

4.10.2. SAMPLE SIZE

The sample size of 500 employees has been taken. These 500 employees belong to different levels of management, right from the lower level to top management of 13 different organizations from all over India viz. Mumbai, Bangalore, Delhi, Pune, Lucknow, Assam, Hyderabad, Noida etc. each contributing to 20 employees per organizations. During data collection, proper care was taken to collect the data in such a way that it is representative. The justification for sample size determination is mentioned below.

Following model can be used to determine sample size (Nargundkar, 2003).

$$n = p(1-p) \left(\frac{Z}{e} \right)^2 \text{ ----- eq. (i)}$$

$$n = 0.50(1-0.50) \left(\frac{1.96}{0.05} \right)^2$$

$$n = 385$$

Where,

n = Sample Size

Z = Value from the standard normal distribution for the confidence level as desired. It assumes 95 percent confidence level. The Z Value is 1.6 for the 95 percent confidence level as given in the standard distribution tables.

p = Frequency of occurrence of something expressed as a proportion (0.50).

e = Tolerance error. It assumes tolerance of 5 percent.

Applying above formula, the sample size comes to 385. Therefore, sample size above 385 can always be a fair representation of the population.

4.10.3 SAMPLE RESPONDENTS

The respondents for the study are senior management, HR Managers, HR executives, HR experts and other employees of the selected companies. The standardized structured questionnaire is prepared for gathering data for the quantitative analysis.

4.10.4 SAMPLING TECHNIQUE

As the study is exploratory in nature, probability sampling will not be conducive. Hence non – probability purposive sampling has been used to select the respondents. **Purposive sampling** was used to prepare to select organizations on the basis of obtainability of essential HR analytics practice.

4.10.5 UNIVERSE OF THE STUDY

This study is carried out among thirteen (13) different sectors of Indian Economy like construction, pharmaceutical, banking sector, telecom sector, insurance sector, IT sector, Service sector, Public power sector, public sector,

oil sector, retail sector, automobiles and BPO & KPO sector. 500 sample size of twenty-six (26) organizations belonging to 13 different sectors has been used.

4.11. DATA COLLECTION

A pilot study has been undertaken initially to find out numerous dimensions that are specifically related to study undertaken by keeping in mind the area of HR Analytics, Human Resource Management strategies, and Organizational Performance. Quite a lot of other insights has proved to be used with reference to the constructs which has further helped in restructuring the rough draft of the questionnaire. A number of employees of several organizations interacted which laid an acceptable groundwork for the research study to be formulated. The research gap seemed to become all the more obvious and the area of research could be finally selected to answer the inevitable research questions that pertain to the various development of the researchers. The pilot study also helped in finding out areas to be selected as the sampling frame and it further helped to filter the variables that could be taken up for the study.

4.11.1 PRIMARY DATA

Primary data have been obtained through survey questionnaires with representatives from the respondents of the selected companies. These Questionnaires has been distributed to the 30 selected Organizations through both online and direct distributions. A standardized survey Questionnaire was

conceptualized after a thorough and most exhaustive review of related literature based on various functions of Human Resource Functions and it was finalized via pilot study which was conducted by three different organizations to impart an industry orientation to the questionnaire as well to test the reliability before proceeding with the actual data collection process.

The first section of the questionnaire was drafted to get responses relating to the demographic profile of the respondents which included age, gender, experience, occupation, designation etc. The latter section of the questionnaire contained questions with reference to scores on HR Analytics and Organizational Performance. It was then further divided into subsections to determine the defining parameters.

4.11.2. SECONDARY DATA

The secondary data was basically employed for arriving at a suitable formulation of the construct and it also supported in a suitable selection of the sample. Additional, it also increased the understanding of the present-day situation of the overall business strategy formulation process and performance of the organization. The secondary data was collected using annual reports of selected organizations, research papers, white papers, video clips, webinars, Articles from leading business journals, as well as books within the context of

HR analytics, organizational performance, and strategic management will form as the evidence for the study.

4.12. RESEARCH INSTRUMENT USED

The survey questionnaire was developed to understand the impact of HR Analytics on organizational performance and compensation strategy. The research instrument was tailored accordingly.

4.12.1 INSTRUMENT CONSTRUCTION

Primary data is the most important source for this study as it is given by the respondents and preparation of questionnaire is the most important stage for this study. Initially, preliminary research instrument was prepared based on an in-depth literature review in the same and/or similar field. The survey study developed a questionnaire based on variables chosen. The questionnaires contained a thorough brief and clear instruction and were arranged to facilitate ease of response, where the respondents were advised by cover letter of the nature of the research, the researcher's background and education, and the purpose of research. Respondents were assured about the confidentiality of the information provided by them. The survey questionnaires were created to obtain the necessary data that were used to analyze the theory. The questionnaire consists of basic information about the interviewees, their organization and their views on the different relevant constructs of the study.

Then, the research instrument underwent a pilot study to cross-examine the thoroughness of the questionnaire.

Certain changes were incorporated in the research instrument post-pilot study. The final research instrument was divided into two sections. Section A comprised of questions on demographic profile while section B comprised of scores on HR Analytics and Organizational Performance which again further divided into subsections to determine the defining parameters of HR and parameters defining various features for organizations performance. The research instrument had a specific format and each question catered to a specific research objective.

Section A: This section contains questions on the demographic profile of the respondents like age, gender, work experience and work profile.

Section B: This section emphasized upon the parameters of various HR facets that are involved in the organizational performance. This included measurements for compensation strategy formulation, talent management, workforce optimizations, HR Analytics and organizational performance.

4.12.2. EXPLANATION OF THE VARIABLES

The in-depth description of variables used in this study is given below.

4.12.2.1. *Description of demographic and scores of the variables used under study*

Table 4.1 shows the description of demographic and variables used under study.

Table 4.2 Demographic profile used Under Study

	Variable	Name	Type of the measurement used to measure a variable	Scale
1	AGE	AGE	OPEN	ORDINAL
2	GENDER	GEN	OPEN	ORDINAL
3	EDUCATIONAL QUALIFICATION	EDU QUAL	OPEN	ORDINAL
4	DESIGNATION	DSG	OPEN	ORDINAL
5	WORK EXPERIENCE	WE	OPEN	ORDINAL
6	FILTERING QUESTION	FQ	Dichotomous YES, NO	ORDINAL

Table 4.3 Description of other variables used under study

s . n o .	Variable	Name	Type of the measurement used to measure a variable	Scale
1	Compensation Strategy & Organization Mission & Vision	CS1	LIKERT 5 POINT SCALE SD 2. D 3. N 4.A 5. SA	INTERVAL
2	Compensation Policy & Motivation	CS2	LIKERT 5 POINT SCALE SD 2. D 3. N 4.A 5. SA	INTERVAL
3	Compensation & Benefits	CS3	LIKERT 5 POINT SCALE SD 2. D 3. N 4.A 5. SA	INTERVAL
4	Overtime Salary	CS4	LIKERT 5 POINT SCALE SD 2. D 3. N 4.A 5. SA	INTERVAL

5	Performance & Compeansation	CS5	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
6	Bonus Schemes	CS6	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
7	Basic Salary Standards	CS7	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
8	Talent Management & Working Condition For Attraction	TM1	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
9	Talent Management & Motivation	TM2	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
10	Performance & Talent Management	TM3	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
11	Performance & Talent Management	TM4	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
12	Talent Management & Training & Development	TM5	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
13	Succession Planning, Career Growth & Talent Management	TM6	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
14	Workforce Optimization Linked With Performance Of The Employee	WO1	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
15	Management Of HR Cost	WO2	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
16	Manpower Planning	WO3	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
17	Forecasting & Scheduling For Workforce Optimization	WO4	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL

18	Training For Workforce Optimization	WO5	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
19	Organization Pays Dividend To Shareholders	OP1	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
20	Market Position Of Organization	OP2	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
21	Customer Preference	OP3	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
22	Share Market Performance	OP4	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
23	Employee Growth	OP5	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
24	Used Of ICT For Manpower Planning	HRA1	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
25	Knowledge Management In The Organization	HRA2	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
26	HR Data Storage	HRA3	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
27	Organizations Used HR Analytics & ICT tools	HRA4	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL
28	HR Analytics & Decision Making	HRA5	LIKERT 5 POINT SCALE 1. SD 2. D 3. N 4.A 5. SA	INTERVAL

4.13. DATA ANALYSIS & INTERPRETATION

To accomplish the process of data analysis, quantitative research approach has been adopted to test the hypothesis drawn from a conceptual model which was designed. The data collected is then assembled and organized to study the characteristic features of the HR analytics and how it associated with organizations performance.

After the rigorous review of related literature, a conceptual model was designed in order to understand the relationship of various facets of Human Resources function and how this facets of HR are involved in the performance of the organization when HR analytics mediates their relationship. For testing this model, Structural Equation Modeling (SEM) was found to be more suitable as this research method helps in checking the mediation effect. In order to get the result, two statistical software were used namely SPSS version 20 and AMOS version 23.

The responses were coded and entered first into SPSS software for further processing and analysis and then step by step process of SEM was followed with the help of AMOS version 23. The statistical tools like descriptive statistics were initially computed to analyze the demographic details like gender, age, occupation, designation etc. Further, inferential tests like standardized regressions, Chi-square, Confirmatory Factor Analysis, and correlation were applied to deduce the relationship between variables under study.

4.14 KEY CONCEPTS OF HR ANALYTICS WHICH ARE USED FOR MEASUREMENT

4.14.1 DEFINITIONS OF VARIABLES

The operational definitions of the study of the variables, description, and justification of the use of the measurement instruments are discussed below:

4.14.1.1: TALENT MANAGEMENT

One of the objectives of the study is on talent management and its effect on organizational performance. Human resource management is such a function of the organization which is made up of various vital facets and one of them is talent management. As defined by J.P Medved (2015), talent management is a set of unified organizational HR practices which is intended to attract, develop, motivate, retain and engaged employees inside the organizations. He further explained that it is best assumed as a rational move around the hiring, training, and retention of talented and skilled employees. Talent management denotes to the expertise of attracting highly skilled workers, integrating new workers, and developing and retaining current workers to meet current and future business objectives.

Talent management can also be defined as an active management system used by organizations to identify, capture, utilize, develop, grow and nurture the talent of employees to the benefits of the work team and the organization at large (Meyer, Becker & Vandenberghe,2004).

Talent management mainly comprises of mechanisms placed together by ensuring attraction, retention, and development of talent (D'Annunzio-Green, 2008). Talent management very essential as it helps the organizations to effectively appeal and invite the most skilled employees and uphold the necessary talent.

Ally Weeks (April 2017) defined Talent management as the function of HRM that try to find ways to attract, identify, develop, engage, retain and deploy employees who are mainly valued in an organization. Handling this talent strategically, organizations will be able to build a high-performance place of work, inspire a learning organization, enhance value to branding plan, and contribute to management with diversity.

The operational definition of Talent management adopted for the study is the combined review of definitions of many authors. After the rigorous review of related literature, talent management can be defined as the combined as a set of talent acquisition, retention, performance management and career development of the employees.

4.14.1.2. COMPENSATION STRATEGY FORMULATION

Gary Dassler (2011) defines compensation as the all forms of pay going to the employees arising from their employment.

Compensation refers to the benefits (cash, vacation, etc.) that an employee receives in exchange for the service they provide to their employer. Employee compensation is generally one of the largest costs or expenses for any organization. (Mckinney P., n.a)

Bryan Sharp in his blog defines compensation as everything that a company offers its employees in return for their talent and time

S.P. Robbins defines the term compensation management as the process of managing a company's compensation programme. The chief aim of compensation management is to design a cost-effective pay structure that will attract, motivate and retain competent employees in the organizations.

Briana Whiting in her study blog defines Compensation management as the deed of allocating monetary and non – monetary value to an employee's work through the firm's policy or procedures. In simple words, remunerating an employee based upon the decided pay and benefits package for the certain position. The objective of compensation management is to find quality people

who perform quality work and then compensate them in order to retain them and reduce turnover rates. (Whiting B, n.a)

Hence the operational definition of compensation management for this study is compensation management is an act of allotting monetary and non – monetary value to a member of staff's work by abiding in the firm's policy or procedures.

4.14.1.3 WORKFORCE OPTIMIZATION

Genesys (2017) defines workforce optimization as a strategy which used to integrate various technologies and automated procedures for reducing operational costs and manage employee performance more efficiently thus resulting in greater efficiency and higher customer contentment.

As defined by Angela Stringfellow (2017) Workforce optimization (WFO) is a sequence of business strategies that emphasizes on improving the efficiency of the employee. Organizations implement these strategies by keeping a watch on a particular position's action and assigns a suitable number of employees to meet the forecasted activity.

Scott Kendrick (2016) states that a WFO normally contains tools for workforce management, quality monitoring, liability recording, coaching and eLearning, performance management, surveying and speech analytics.

Hence the operational definition of workforce optimization for the study is a practice of filtering the overall effectiveness of workforces at an organization which can be obtained through monitoring the activity of a particular situation and then aligning the right number of employees with the forecasted activity. Thus the workforce optimization comprises of proper workforce management, quality management and forecasting and scheduling.

4.14.1.4. ORGANIZATIONAL PERFORMANCE

Business dictionary defines organizational performance as an analysis of an organization's performance by comparing them to the goals and objectives. Within corporate organizations, three primary outcomes are generally analyzed namely financial, market and shareholder value performance.

Organizational performance can also be defined as an overall firm performance which includes productivity, efficiency, profitability, market value, and competitive advantage (Melville et al., 2004 AU29)

James Adows (2012) gives the definition of organizational performance as the evaluation and comparison of an organization's goals and objectives them with its actual performance mainly with three major parts namely financial performance, market, and shareholders value.

Nwuche CA, Awa HO (2011) states that the organizational performance also rests on the training and development of their workforce. Thus Organizational performance hinges on the employee development because employee development enhances the knowledge base of the organization and also retains the top talents in the organization.

Hence the operational definition of organizational performance is generally organization's performance which includes productivity, efficiency, profitability, market value, employee development and competitive advantage.

4.14.1.5 HUMAN RESOURCE ANALYTICS OR HR ANALYTICS

Erik Van Vulpen (n.a) defined Human Resource analytics (HR analytics) as it is about analyzing an organizations' people problems.

HR analytics demonstrates the causal relationship between the activities exacted by an HR department and the business outcomes that result from this

activity. HR Analytics actually does is demonstrate the impact that an HR department has on the organization in which it is embedded.

HR analytics can also define as “the systematic identification and quantification of the people drivers of business outcomes” (Heuvel & Bondarouk, 2016).

Hence the operational definition of HR analytics can be stated as the use of substantial data mining and business analytics methods to human resources data. The objective of human resources analytics is to make organizations available with the insights which will help in effectively handling workforces so that business aims and objectives can be reached swiftly and proficiently. (Aleksandra Swerdlow, 2015).

4.15 TIME FRAME OF THE STUDY

The study was undertaken to the inputs given by the respondents for the year stretching from 2015-2017. A cross sectional study has been taken for this research as the sample taken was from various industries.

The blueprint of the entire research process has been completed. From the above research outline includes the type of research, objectives and hypothesis, sampling design, research questionnaire, pilot study, scope of research and its

various constraints faced during the study. The next step of the researcher collection of the primary data through questionnaire. After the collection questionnaires has been filtered through more factor analysis, then coded the raw data and completed the analysis. In the next chapter the analysis of the primary data collected during the survey can be seen.

CHAPTER – V

DATA ANALYSIS & INTERPRETATION

CHAPTER – V

DATA ANALYSIS & INTERPRETATION

5.1: INTRODUCTION

After devising a detailed research strategy and methodology to be adopted in the preceding chapter, this chapter gives the detailed analysis, discussion and the assessment of the outcomes of the research thereof shading a light into the conceptual theory which was developed after a thorough review of the related literature. The research objectives are met by analyzing the most crucial dimensions and variables which were considered for the study through the conceptual framework to understand the comprehensive and integrated structure which are responsible for enhancing the performance of the organization in every company.

The procedure of examining the quantitative data mainly comprises of sorting, organizing and summarizing data collected via interview and questionnaires in a way that aids interpretation and reporting of the findings and ultimately the decision-making process (McGivern, 2003). In order to identify and examine the items that affect the organization's performance, factor analysis was used. Specifically, the relationships of proposed constructs are mainly been studied by using the technique of factor analysis.

5.2: ADAPTATION OF HR ANALYTICS IN INDIA

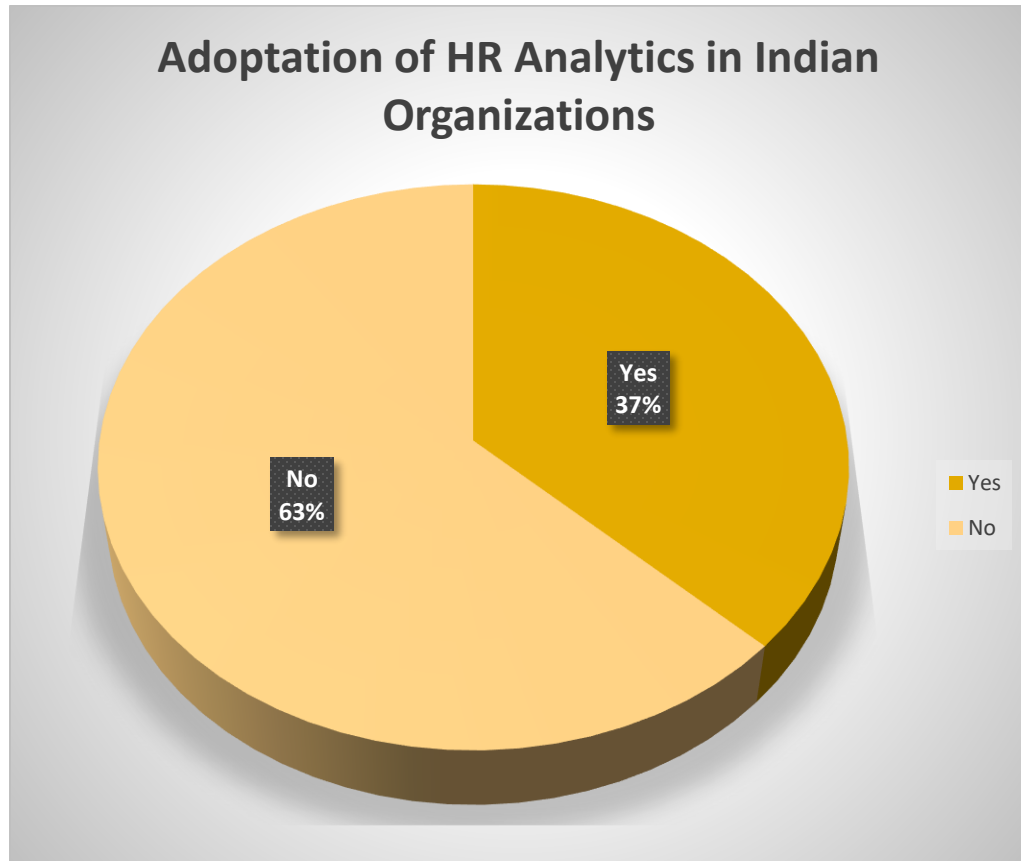


Fig 5.1: Adaptation of HR Analytics by organizations

Even though India is the fastest growing economy, it still lacks behind in numerous aspects. Today, India is known to be the IT hub but organizations in India is lagging behind in following the trends of the world. Figure 5.1 shows the level of acceptance of HR analytics in organizations in India. It can be seen from the figure 5.1, that the companies in India are still in the infant stage when it comes to embracing the latest technologies. The majority of the organizations in India has not yet implemented HR

analytics in their companies. Only 37% has admitted to using analytics in their organizations and 63% are yet to install in their companies. A total of 70 different organizations both from private and public sectors located in different parts of the country i.e. India was taken as a sample, out of which only 26 organizations responded that they use HR analytics in their organizations.

5.3: DESIGNATION WISE RESPONDENTS

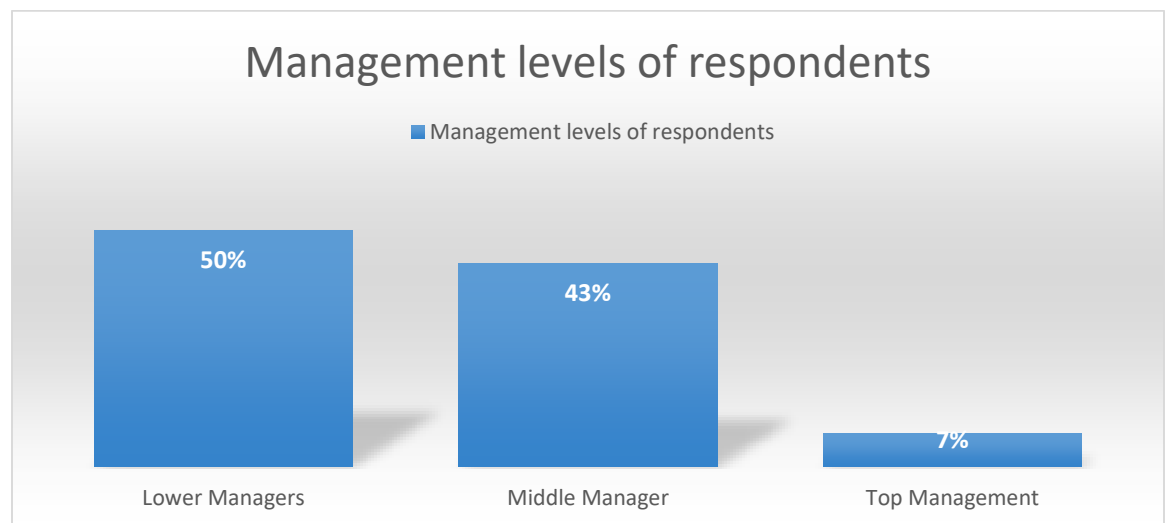


Figure 5.2: Respondents of different Levels of Management

The above chart, figure 5.2, shows the respondents that belong to different levels of management in the organizations. The responses came mainly from three different levels of the management namely lower level, middle level, and top management. The lower level mainly comprises of the line managers, the middle level consists of HR managers and different department heads and the top management level comprises the top level executives. Figure 5.2 shows that 50% of the respondent mainly belong to the lower

level, 43% belongs to the middle level and only 5% of the top level executives have given their response to the study.

5.4: QUALIFICATIONS OF THE RESPONDENTS:

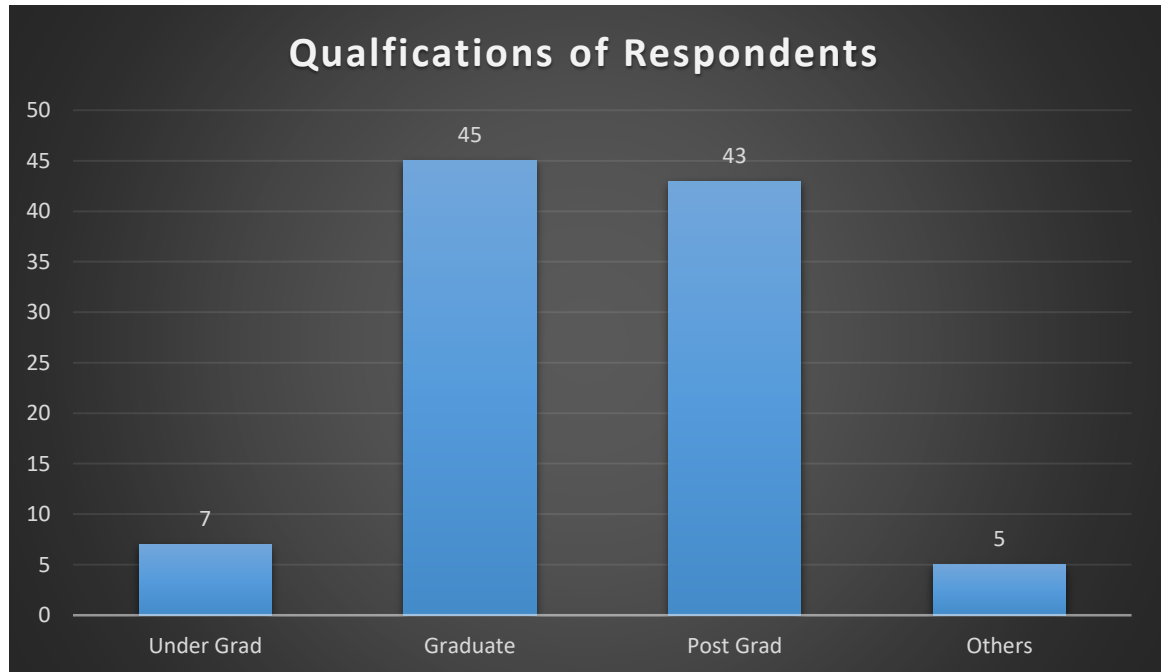


Figure 5.3: Educational Qualifications of respondents

The above chart fig 5.3, shows the levels of qualifications of the respondents. Out of 500 respondents, 45% are graduates, 43% postgraduates, 7% undergraduates and 5 % are employees having diploma certifications courses. In the 45% graduates, maximum of them are having professional degrees like engineering, BBA etc. while 43% postgraduates are mostly MBA holders. Among the 43% postgraduates, there are other subject degree holders as well but maximum has done their masters in business administrations.

5.5: APPLICATION OF SEM:

The proposed integrated conceptual model has been developed to check the mediation effect of HR analytics on the performance of the organization with respect to different facets of Human Resource Management strategies can be verified with the application of structural equation modeling or SEM. SEM is used mainly to assess the measurement properties and also to test the proposed theoretical relationships by single technique (Malhotra N. 2011). Based on the review of related literature and previous researches, it can propose that few facets of human resource management department aid in the performance of the organization when HR Analytic play a role of mediator among them. SEM is used for determining the validity of the conceptual model and to test the hypothesis that has been developed. In this model, HR analytics plays a mediating role among exogenous constructs like compensation strategy formulation, talent management and workforce optimization and endogenous construct like organizational performance. This theoretical framework has been applied to various organizations in India. The main idea behind the study was to test the proposed conceptual model in the Indian context. For this purpose, organizations belonging to different sectors of the industry in India was taken as a sampling frame. To collect the data, 13 different sectors of the industry, 26 organization from each sector and 20 employees per organization was taken as a sample size. A total of 500 employees belonging to all levels of management were taken as a total sample size. The data were collected through standardized questionnaire, which was administered through web-based as well as individually to each employee of 26 different organizations. A total of 410 complete responses were

collected from the survey. The dataset was then coded and uploaded into SPSS version 20 and was analyzed with the help of AMOS version 23 for constructing the model.

The data was then analyzed with the help of SEM, hence the detailed process of SEM method was carried out for validating the proposed model. The steps involved in SEM are as follows (Malhotra. N. & Dash S. 2011):

- a. Define the Individual Constructs*
- b. Specify the Measurement Model*
- c. Assess the Measurement Model Reliability and Validity*
- d. Specify the Structural Model*
- e. Assess the structural model validity*
- f. Conclusions & Recommendations*

a. Define the Individual Constructs

The tenacity of this study was essential to forecast the mediating effect of HR Analytics on Organizations performance when three facets of human resource management department viz. compensation strategy formulation, talent management, and workforce optimization play a role in it. The theory was grounded based on the prior research and literature. The theory proposes that the three aspects of HRM strategies impact the performance of the organization when HR Analytics acts as mediator. In the endeavor to evaluate the measurement errors, each latent constructs were measured by numerous

observed variables or items. Hence, in the data set, there are 5 constructs and 14 items, each having multiple indicator variables as shown in table 5.1.

The latent construct dimensions follow:

1. Compensation strategy (CS) having 2 items,
2. Talent Management (TM) having 3 items,
3. Workforce Optimization (WO) having 3 items,
4. HR Analytics (HRA) having 3 items
5. Organizational Performance (OP) containing 3 items.

As the construct is an unobservable variable, it can only be defined in conceptual term but cannot be measured directly. Hence to measure the constructs, all the items of the construct together gives a measurable value. As the construct cannot be measured without an error, hence, it is measured indirectly by scrutinizing the reliability of the measured variables. These items or the measured variables are each measured on 5 points Likert scale anchored with “Strongly disagree” (1) and “strongly agree” (5). Compensation Strategy formulation was measured by 2 items CS6 and CS7, Talent Management by TM1, TM3, TM4, Workforce Optimization by WO1, WO3, WO5, HR Analytics by HRA3, HRA4, HRA5, and Organizational Performance by OP2, OP3, OP4. These indicators or items are explained with details in table 5.1.

Table 5.1: Factor loading of items of each construct.

CONSTRUCTS	ITEMS coded	INDICATORS	FACTOR LOADING
Compensation Strategy	CS6	Compensation is linked with performance appraisal	0.71
	CS7	Compensation policy motivates employees to perform better	0.83
Talent Management	TM1	working conditions and fair wages attract the right talents	0.74
	TM3	Performance exceptions are clearly communicated	0.77
	TM4	My organization follows systematic approach to performance analysis	0.82
Workforce Optimization	WO1	Organizations links the staff level with performance goals	0.81
	WO3	Manpower Planning is performed scientifically	0.95
	WO5	Employees are well trained to deliver better information and improve the customer experience.	0.8
Organizational Performance	OP2	Market position of the organization is increasing	0.89
	OP3	Customer preference for companies product is higher	0.76
	OP4	Share prices of the company is performing well	0.74
HR Analytics	HRA3	Data is collected and analyzed for HR decisions in the organization	0.83
	HRA4	HR Department is well equipped with ICT and analytics tools.	0.91
	HRA5	Uses HR Analytics linkage in strategic decision making.	0.93

From the table 5.1, it can be seen that various items of each construct give them a measurable value. Based on these constructs, a proposed model has been developed.

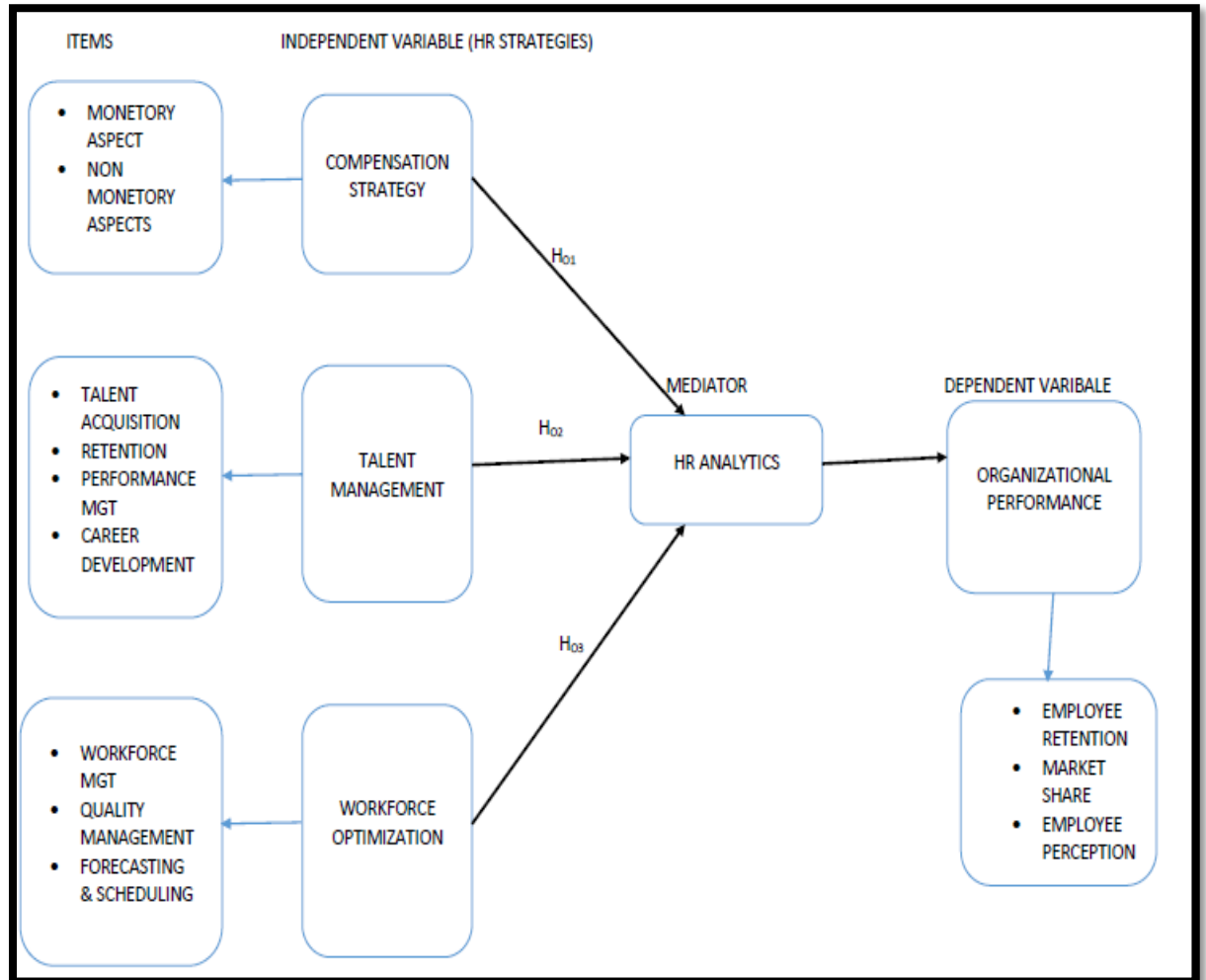


Figure 5.4: Proposed Conceptual Model: Organizational Performance under HR Analytics

The above model, i.e. figure 5.4, has been developed based on the previously related literature. For testing the validity and reliability of the integrated model, theoretical relationships are generally transformed into a hypothesis for

empirical testing. For the empirical testing of the integrated proposed model the following null hypothesis was framed:

H₀: *Influence of HR strategies on organizational Performance is not significantly mediated by HR analytics.*

In order to test the influence of HR analytics on Organizational performance by three HR strategies independently, the integrated model was broken down and each construct was tested independently to check the relationship and hence the integrated model hypothesis was further broken down to the following three more sub-hypothesis:

Hypothesis 1: *There is no significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.*

Hypothesis 2: *There is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two*

Hypothesis 3: *There is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two*

b. Specify the Measurement Model

The assessments of the structural connections are likely to be subjective lest the measurement instrument is reliable and valid. In order to validate the proposed model, measurement model is tested. The proposed model is specified in a way that five factors are allowed to correlate with each other and each of which is associated with its own items as depicted in figure 5.1. Table 5.2 depicts the mean, standard deviation, and correlations of each item of the model.

TABLE 5.2: Mean, Standard Deviation and Correlation of the Measurement Model

	Me an	Std Dev	CORRELATION													
			CS6	CS7	TM1	TM3	TM4	WO1	WO3	WO5	OP2	OP3	OP4	HRA3	HRA4	HRA5
CS6	3.90	.918	1													
CS7	3.90	.800	.455*	1												
TM1	4.06	.838	.177*	.374*	1											
TM3	3.87	.908	.177*	.374*	1	1										
TM4	3.88	.934	.435*	.513*	.531*	.515*	1									
WO1	3.70	.889	.446*	.438*	.255*	.382*	.420**	1								
WO3	3.84	.856	.305*	.255*	.419*	.386*	.422**	.456**	1							
WO5	3.81	.781	.166*	.176*	.145*	.196*	.165**	.373**	.487**	1						
OP2	4.00	.818	.140*	.291*	.274*	.201*	.365**	.487**	.409**	.325*	1					
OP3	3.92	.852	.077	.125*	.113*	.108*	.188**	.357**	.396**	.390*	.477*	1				
OP4	3.95	.854	.190*	.172*	.233*	.112*	.281**	.346**	.495**	.269*	.507*	.594*	1			
HRA3	3.67	.951	.274*	.226*	.212*	.280*	.298**	.483**	.371**	.343*	.518*	.422*	.418*	1		
HRA4	3.70	.909	.308*	.277*	.261*	.348*	.437**	.519**	.456**	.283*	.536*	.438*	.451*	.771**	1	
HRA5	3.73	.921	.290*	.205*	.189*	.283*	.336**	.479**	.373**	.304*	.545*	.395*	.447*	.755**	.855**	1

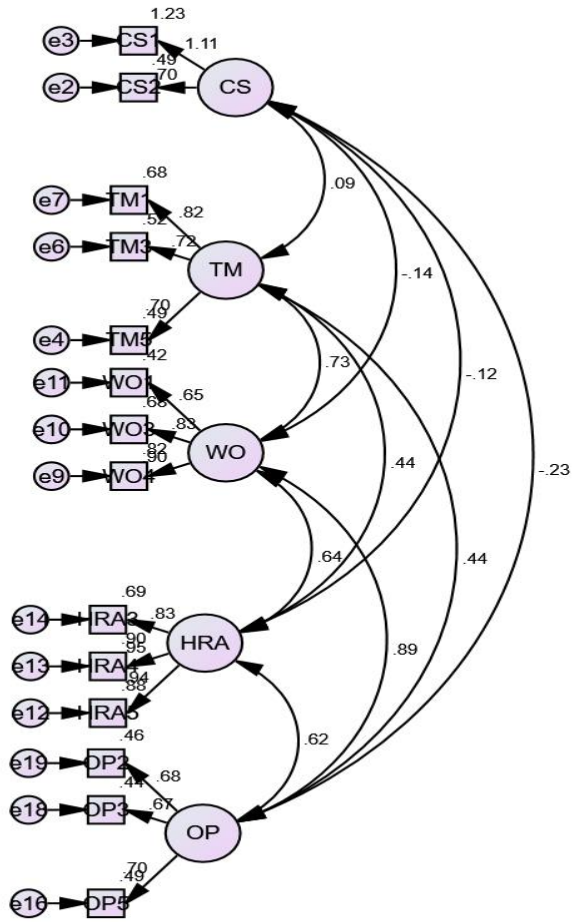


Figure 5.5: Measurement Model of Proposed model of HRA mediator to OP

c. Assess Measurement Model Reliability and Validity

The proposed model was set up to validate the scales and a confirmatory factor analysis (CFA) was conducted for testing the measurement model. The fit of the model was evaluated that was based on the three different fit indices viz. comparative fit index (CFI), goodness fit index and root mean square error approximation (RMSEA). The results of the CFA indicated that model fits the data quite well, i.e. $\chi^2 = 355$, $p < .05$ with the given $df = 80$. Further from the table 5.3 it can be seen that the CFI = .906, GFI = .897 and RMSEA = .041. It indicates that, as CFI value is greater than .9 and GFI value is also almost close to .9 the measurement model can be considered a fit model. Also, the RMSEA values indicate the model to be fit as it is less than .05. Thus, overall proposed measurement model is considered a fit.

Table 5.3: Model Fit Indices

MODEL FIT INDICES	DEFAULT MODEL
CMIN	NOT SIGNIFICANT
GFI	0.897
NFI	0.883
CFI	0.906
RMSEA	0.041

Also from the table 5.4, the measure of the internal consistency through Cronbach's Alpha test showed that the items of the construct were very closely related thus proving that the scale in the question of the item is uni-dimensional. Table 5.4 shows that the alpha coefficient for all the items in every construct measures its value to be more than .8 which is higher than .7 which is the standard coefficient to check the reliability. Hence it suggests that the items have reasonably high internal consistency.

Table 5.4: Reliability Statistics		
Constructs	Cronbach's Alpha	N of Items
CS	.843	2
TM	.812	3
WO	.854	3
OP	.823	3
HRA	.847	3

In addition to the model fit, convergent validity is further established by loading all the items of the constructs and tested if the item loadings are equal or above the recommended cutoff levels. A composite reliability (CR) and validity were established. In the sample, a total of 14 items in the measurement model was loaded and all the items have a loading above .8 level which is above the recommended cutoff levels. As it can be seen from the table 5.5, the scales of the composite reliability (CR) exceeds that of the recommended cutoff value i.e. value $\geq .70$. Hence it can be reasonably concluded that the scales of the

measurement model are reliable. Again, from the table 5.5, it can be seen that in terms of Average variance extracts (AVE) also all the values were greater than .5 level. Each item loading in table 5.5 shows in the range of .6 to .7 which is greater than .5. Hence it has provided an empirical support that the convergent validity has been established.

Table 5.5: Convergent Validity test

Convergent Validity	CS	TM	WO	HRA	OP
$AVE = \sum x_i^2 / N$ value > .5	0.703	0.714	0.614	0.797	0.629
$CR = \sum (x_i)^2 / (\sum (x_i)^2 + \sum \delta)$ value > .7	0.826	0.882	0.836	0.922	0.835
Convergent Validity	Est.	Est.	Est.	Est.	Est.

Now the discriminant validity has been achieved by the square root of the average variance extracted. From the sample, correlation estimates were taken and all of the items of the construct met the criterion. There was a very strong correlation between the items of the constructs. Table 5.6, shows that test for the discriminant validity. The test of correlation between compensation strategy (CS) and Talent Management (TM) dimensions was greater than .7 which is quite high. Even though few items relation was not very high, still when test with other items its correlation increased. As the discriminant validity is tested by comparing the square root of the correlation of items and with the average variance extracts, r^2 has to less than the AVEs. The table 5.6 shows that every variable shows that the AVEs values are greater than the squared correlation

value. Thus it is the empirical evidence that the discriminant validity of the scales has also been established.

Table 5.6: Discriminant Validity test

	FACTOR r	r²	AVE 1 AVEs should be > r²	AVE2	DISCRIMINANT VALIDITY
CS <--->OP	0.331	0.110	0.703	0.629	ESTABLISHED
CS <--->TM	0.764	0.584	0.703	0.714	ESTABLISHED
WO <--->CS	0.704	0.496	0.614	0.703	ESTABLISHED
CS <--->HRA	0.452	0.204	0.703	0.797	ESTABLISHED
WO <--->TM	0.7	0.490	0.614	0.714	ESTABLISHED
TM <--->HRA	0.491	0.241	0.714	0.797	ESTABLISHED
TM <--->OP	0.421	0.177	0.714	0.629	ESTABLISHED
WO <--->HRA	0.695	0.483	0.614	0.797	ESTABLISHED
WO <--->OP	0.809	0.599	0.614	0.629	ESTABLISHED
HRA <--->OP	0.708	0.501	0.797	0.629	ESTABLISHED

Thus from the data, the overall measurement model is believed to be appropriate given the evidence of good model fit, the reliability, convergent validity and discriminant validity were all also established. In summary, overall the scales of the items were both reliable and valid for testing the structural model.

d. Specify the Structural Model

Based on the proposed theoretical model, a hypothesis was drawn perceiving that HRA plays a mediating role in three HR facets and organizational performance. As the measurement model of the proposed conceptual model has

been established, next step was to an emphasis on the relationship among the constructs. As the measurement model has been altered, estimated covariance matrix examined has also changed. But as the same data has been used, hence observed covariance matrix remains the same.

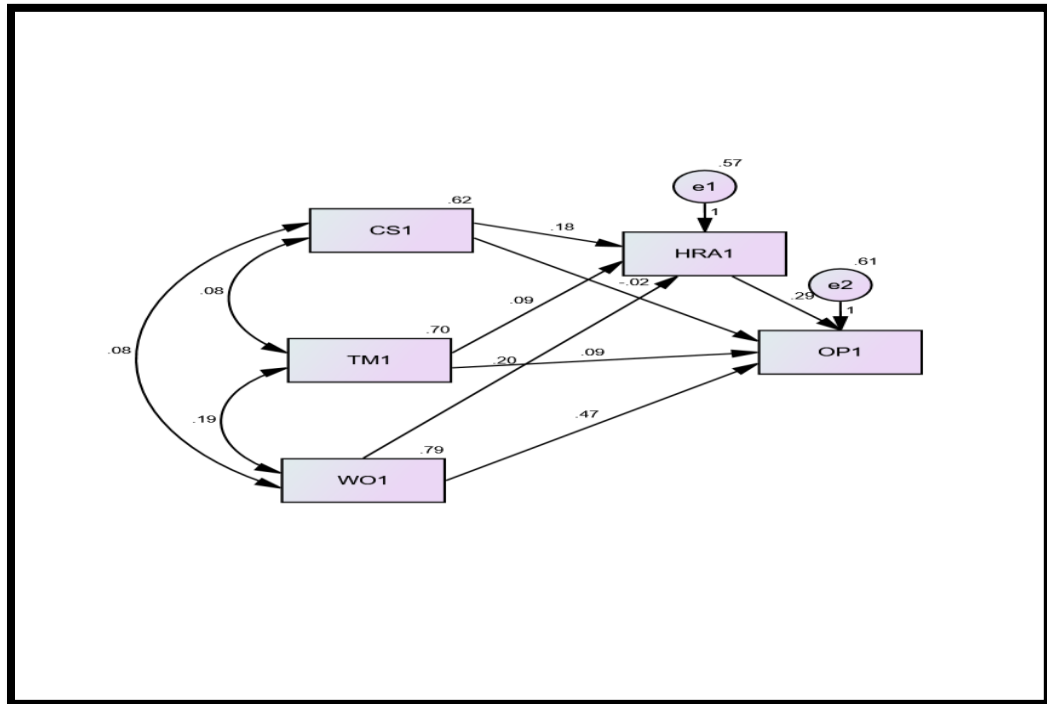


Figure 5.6: Structural Model of the proposed model.

Based on the theoretical aspects, the integrated hypothesis was established for testing the proposed integrated model.

HO: *Influence of HR strategies on organizational Performance is not significantly mediated by HR analytics.*

The integrated model hypothesis helps to check the how the HR strategies help in enhancing the organization's performance. Further to test how this each HR

strategies independently works, three more sub-hypothesis was established for checking the mediation effect of HR Analytics on organizational performance.

Following are the hypothesis:

- Hypothesis 1: *There is no significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.*

- Hypothesis 2: *There is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two*

- Hypothesis 3: *There is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two*

Grounding on the theory, three latent constructs namely compensation strategy formulation (CF), talent management (TM) and workforce optimization (WO) when combined together, they all enhances the performance of the organization especially when HR Analytics (HRA) mediates between them. HR analytics links these three latent constructs to the organizational performance. The entire structural model is tested simultaneously as shown in figure 5.3. The whole measured items are loaded on each construct at a time, but not permitting the

error to correlate with each other. As the measurement model tests the reliability and validity of the model, the structural model tests the relationship in the model.

e. Assess Structural Model validity

The sample size of the estimated structural model was $n = 410$ which has yielded the following results as shown in table 5.7. After testing of the model, in case of the measurement model, the proposed model was found to be satisfactory as the fit values of the model namely CFI, GFI and NFI were greater than .9 of the recommended cutoff. After the structural model was estimated, CFI = .9, RMSEA = 0.06 NFI = .915 values, which all met the recommended cutoffs. Hence collectively these indicate that the structural model is acceptable.

Table 5.7: Goodness of fit statistics of Measurement model

GOODNESS OF FIT STATISTICS (STRUCTURAL MODEL)	
DEGREE OF FREEDOM	94
MIN. FIT FUNCTION CHI SQUARE	468.439
CHI-SQUARE FOR INDEPENDENCE MODEL WITH 120 DEGREES OF FREEDOM	254.167
ROOT MEAN SQUARE ERROR OF APPROXIMATION (RMSEA)	0.061
STANDARD RMR	0.048
NORMED FIT INDEX (NFI)	0.915
COMPARATIVE FIT INDEX (CFI)	0.909

Also, as the path analysis estimates were calculated to check the direct and indirect effect of HR analytics on organizational performance, table 5.8 and 5.9 gives us the standardized effects of the constructs. The calculated strength of each relationship was tested to check the correlation among them. The table 5.8 shows that the three constructs namely compensation strategy, talent management, and workforce optimization when it directly linked with the organization's performance there is no significant relationship among them, except for OP as HRA does have a significant relationship.

Table 5.8: Standardized Direct Effects

Standardized Direct Effects (Group number 1 - Default model)				
	WO1	TM1	CS1	HRA1
HRA1	0.226	0.092	0.181	0.000
OP1	0.438	0.083	0.067	0.002

*** $\rho < .05$ level.

But as depicted in table 5.9, when the mediator HR analytics mediates the relationship among the three constructs with organization performance, the beta estimates reduces and there is a significant effect of all three constructs namely compensation strategy, talent management and workforce optimization on the overall performance of the organization.

Table 5.9: Standardized Indirect Effects

Standardized Indirect Effects (Group number 1 - Default model)				
	WO1	TM1	CS1	HRA1
HRA1	0.000	0.000	0.000	0.000
OP1	0.050	0.022	0.044	0.000

** $\rho < .05$ level.

From the above analysis, it can be seen that the integrated model of Proposed Conceptual Model of Organizational Performance under HR Analytics is needed to be tested to a fit structural model. The three HR strategies do have a partial impact on the organization's performance. When these three HR strategies are applied to organizations strategies simultaneously, it does have a significant influence on the overall performance of the organization. It means that along with the other functional strategies like marketing strategies, financial strategies, production & operation strategies etc. HR strategies also need to be included in the overall business strategies in order to have a better performance in the organization.

Now again to check whether these HR strategies when they are applied independently along with HR analytics whether helps in the organization performance or not, further testing has been done as shown in the following:

Table 5.10: Effect of CS on OP without mediation

WITHOUT MEDIATION					
Effects of variables	Beta Estimates	S.E	C.R	P Value	Result
OP <----- CS	0.657	0.104	3.436	***	SIGNIFICANT

** $\rho < .05$ level.

From the above table 5.10, it can be seen that the estimate β of CS on OP is .657 and significant at a level less than 0.001 level. It means that 65% of the variance of OP is explained by CS. It can also be seen that although CS has a significant influence in OP there are other factors that play a part in OP.

Table 5.11: Effect of CS on OP with mediation of HRA

WITH MEDIATION					
Effects of variables	Beta Estimates	S.E	C.R	P Value	Result
OP <----- CS	0.419	0.084	0.228	0.01	SIGNIFICANT
HRA <----- CS	0.696	0.119	5.869	***	SIGNIFICANT
OP <----- HRA	0.565	0.054	10.397	***	SIGNIFICANT

** $\rho < .05$ level.

But when HRA is entered in the model as shown in table 5.11, the relationship between OP & CS has changed and reduced but yet remains significant. This confirms the mediation of the effect of HRA on the relationship of OP & CS, but this mediation effect is only partial. Hence it can be said that HRA plays a partial role between CS and OP. HRA though contribute only 41% in mediating

CS with OP, it does show that HRA has a certain effect in the formulation of compensation which in turn aids in the performance of the organization..

Table 5.12: Effect of TM on OP without mediation

WITHOUT MEDIATION					
Effects of variables	Beta Estimates	S.E	C.R	P Value	Result
OP <----TM	0.375	0.063	5.985	***	SIGNIFICANT

** $\rho < .05$ level.

From the table 5.12, it can be seen that when HRA is not entered in the model, the estimate β of TM on OP is .375 and significant. It means that 37.5% of the variance of OP is explained by TM. Hence it indicates that Talent Management though has a significant contribution to organizations performance, but it is not solely responsible for it as it can be seen that other factors also influence the performance of the organization

Table 5.13: Effect of TM on OP with mediation

WITH MEDIATION					
Effects of variables	Beta Estimates	S.E	C.R	P Value	Result
OP <----- TM	0.089	0.053	1.671	0.04	SIGNIFICANT
HRA <----- TM	0.565	0.069	8.141	***	SIGNIFICANT
OP <---- HRA	0.488	0.047	10.296	***	SIGNIFICANT

** $\rho < .05$ level.

When HRA is entered in the model, the relationship between OP & TM is slightly altered but yet remains significant. This confirms the mediation of HRA on the relationship of OP & TM, but this mediation effect is partial. Although the effect of HR analytics is partial, it is evident that HR analytics does impact

the overall performance of the organization when Talent Management is properly managed.

Table 5.14: Effect of WO on OP without mediation

WITHOUT MEDIATION					
Effects of variables	Beta Estimates	S.E	C.R	P Value	Result
OP <----- WO	0.79	0.077	10.238	***	SIGNIFICANT

** $\rho < .05$ level

Table 5.14 indicates that when HR Analytics is not entered in the model, the estimate β of WO on OP is .79 and significant. It means that 79% of the variance of OP is explained by WO. Although optimization of workforce aids in boosting the performance of the organization, there are other factors that contribute to it too.

Table 5.15: Effect of WO on OP with the mediation

WITH MEDIATION					
Effects of variables	Beta Estimates	S.E	C.R	P Value	Result
OP <----- WO	0.619	0.096	6.467	***	SIGNIFICANT
HRA <----- WO	0.934	0.09	10.429	***	SIGNIFICANT
OP <----- HRA	0.219	0.056	3.91	***	SIGNIFICANT

Table 5.15 indicates that when HR Analytics is entered into the model, the relationship between OP & WO has again slightly changed but yet still remains significant. This again confirms the mediation of HRA on the relationship of OP & WO, but this mediation effect is partial. This means that HR Analytics though helps in mediating the relation between optimization of workforce and

Organizations performance but its effect is partial or impact of HR analytics is less. But it shows that though just a partial mediation effect, still, HR analytics play a significant role in mediating the relationship between workforce optimization and organization performance.

f. Draw Conclusion and Make Recommendation

From the above analysis, the results of SEM indicates that the proposed conceptual model of Organizational Performance under HR Analytics is overall a fit model. All the dimensions of human resource strategies have a substantial impact in enhancing the organizational performance when HRA mediates their relationship. These strategies when applied simultaneously or independently does have a significant influence on overall enhancing the performance of the organization. Hence all the hypothesis let be integrated or independent, has been statistically proven that HR analytics is the vital part that plays in enhancing the organizational performance. Thus the null hypothesis that influence of HR strategies on organizational performance is not significantly mediated by HR analytics is rejected. HR Analytics does play a very significant role in the overall performance of the organization. Hence the integrated proposed model is tested reliable and valid.

5.6: SUMMARY OF THE ANALYSIS:

From the above analysis, it is clear that the proposed integrated model of Organizational Performance under HR Analytics is a good fit model. The three HR strategies namely compensation strategy, talent management, and workforce optimization all play an important role in the performance of the organization. Human resources are indeed an asset to the well-being of the organization when managed properly. Hence with the help of the integrated model of Organizational Performance under HR Analytics, the organizations of India can function more profitably. It has been therefore proven through this study that HR Analytics is indeed a precursor to the organizational performance.

5.7 SUMMARY OF HYPOTHESIS TESTING

Table 5.16: Result summary of hypothesis testing

OBJECTIVES	HYPOTHESIS	RESULTS OF HYPOTHESIS TESTING
To study the influence of HR strategies on Organizational Performance when mediated by HR analytics	H₀: <i>Influence of HR strategies on organizational Performance is not significantly mediated by HR analytics.</i>	Rejected

<p>To study the significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two</p>	<p>Hypothesis 1: <i>There is no significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.</i></p>	<p>Rejected</p>
<p>To study the relationship between talent management and organizational performance when HR analytics mediates the relation between the two</p>	<p>Hypothesis 2: <i>There is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two</i></p>	<p>Rejected</p>
<p>To study the relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two</p>	<p>Hypothesis 3: <i>There is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two</i></p>	<p>Rejected</p>
<p>To study HR Analytics as a precursor to organizational performance</p>	<p>NA</p>	<p>NA</p>

CHAPTER - VI

RESULTS & FINDINGS

CHAPTER VI

RESULTS & FINDINGS

6.1: INTRODUCTION

The intent of this chapter is to put skeleton to the entire research study and deliberate a conclusion in perspective of the set research objectives. This chapter gives a summary of the entire research which is then tailed by the recommendations and conclusion as a finale in the next chapter. The scope of this research study also highlighted the complete discoveries of the study which form the core of this segment. The segment also presents a vital significance of this research. This chapter presents the summary of main findings on the basis of analysis of the study as presented in the previous chapter.

6.2: RESEARCH FINDINGS:

After a thorough research, as mentioned in the previous chapters, it can be summarized that the key driver of this study was understanding the influence of HR strategies viz. compensation strategy, talent management, and workforce optimization has an effect on Organizational performance when HR Analytics mediates the relationship and to comprehend the significant dimensions and variables to effectively manage the existence. In attaining the aforesaid goal, the study put forward the following objectives:

1. To study the influence of HR strategies on Organizational Performance when mediated by HR analytics
2. To study the relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two
3. To study the relationship between talent management and organizational performance when HR analytics mediates the relation between the two
4. To study the relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two
5. To study HR Analytics as a precursor to organizational performance

In accomplishing the purpose and goals of this research, a conceptual framework has been implemented to assist as an outline for the study of this research. For testing and validating the above objectives with a strong empirical support the following hypothesis was framed for testing the proposed conceptual model:

Ho: *Influence of HR strategies on organizational Performance is not significantly mediated by HR analytics.*

The above hypothesis gives the holistic view of the integrated proposed model. In order to have an in-depth understanding of how each of the HR strategies works independently, this above hypothesis was further broken down into three sub-hypothesis as:

Hypothesis 1: *There is no significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.*

Hypothesis 2: *There is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two*

Hypothesis 3: *There is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two*

6.2.1: Detailed Findings of the study:

The findings are mainly the outcomes of the research which is mainly the result of the more comprehensive examination of the data in the research study. All the findings are linked and correlated with the context of the set objectives of the research which are as follows:

6.2.1.1 Findings of Objective 1: Study of influence of HR strategies on Organizational Performance when mediated by HR analytics

Ho: *Influence of HR strategies on organizational Performance is not significantly mediated by HR analytics.*

1. For the above objective, a proposed integrated conceptual model named Organizational Performance under HR Analytics was developed which was obtained from the rigorous review of related literature. After testing of the model, it was found that the measurement model was found to be a good fit which means that the proposed model does indeed work.
2. The proposed integrated model was found to be satisfactory as the fit values of the model namely CFI, GFI and NFI were greater than .9 of the recommended cutoff. After the structural model was estimated, CFI = .9, RMSEA = 0.06 NFI = .915 values, which all met the recommended cutoffs. Hence collectively these indicate that the structural model is acceptable.
3. From the above, it can be noted that the proposed integrated model of Organizational Performance under HR Analytics is deemed to be considered as a good model fit.

4. Also, as the path analysis estimates were calculated to check the direct and indirect effect of HR analytics on organizational performance, it has shown the standardized effects of the constructs. The calculated strength of each relationship was tested to check the correlation among them. And all the three constructs namely compensation strategy, talent management, and workforce optimization when it directly linked with the organization's performance, as there was no significant relationship among them.
5. But as the mediator HR Analytics mediates the relationship among the three constructs with organization performance, the beta estimates reduces and there is a significant effect of all three constructs namely compensation strategy, talent management and workforce optimization on the overall performance of the organization.
6. Hence the hypothesis that the influence of HR strategies on Organizational Performance is not significantly mediated by HR analytics is rejected.
7. From the above analysis, it can be seen that the integrated model of Proposed Conceptual Model of Organizational Performance under HR Analytics is needed to be tested to a fit structural model. The three HR strategies do have a

partial impact on the organization's performance. And when these three HR strategies are applied to organizations strategies simultaneously, it does have a significant influence on the overall performance of the organization. It means that along with the other functional strategies like marketing strategies, financial strategies, production & operation strategies etc. HR strategies also need to be included in the overall business strategies in order to have a better performance in the organization.

6.2.1.2: Findings of the objective 2: *To study the relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.*

Hypothesis 1: There is no significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.

1. HR strategies were applied independently along with HR analytics to test its effect individually in this case compensation strategy.
2. In Compensation strategy formulation, it seems that the HRA has a significant impact though not complete, a partial effect can be seen in the performance of

the organizations. So HRA, if included in CS, can help optimize or maximize the performance output of the organization.

3. It is evident from the study that HR analytics helps the HR managers' up to a certain limit to have a better understanding on how staffing levels, pay-for-performance, and employee performance correlate to employee retention and helps them to design compensation strategy that helps in the growth of the organization.
4. Thus the null hypothesis that there is no significant relation between compensation strategy and organizational performance when HR Analytics mediates the relation is rejected.
5. Hence HRA does play a very vital role though only partial between CS and OP. Even though HRA contribute only 41% in mediating CS with OP, it does show that HRA has a certain effect in the formulation of compensation which in turn aids in the performance of the organization.
6. So, it can be implied that for enhancing the performance of the organization a sound compensation strategy needs to be formulated and for doing so the use of HR analytics gives a great advantage.

6.2.1.3: Findings of Objective 3: To study the relationship between talent management and organizational performance when HR analytics mediates the relation between the two

Hypothesis 2: *There is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two*

1. HR strategy namely Talent Management along with HR analytics was included in the overall business strategy for better organizational performance.
2. The analysis shows that when HRA is not entered in the model, the estimate β of TM on OP is .375 and significant. It means that 37.5% of the variance of OP is explained by TM. Hence it indicates that Talent Management though has a significant contribution to organizations performance, but it is not solely responsible for it as it can be seen that other factors also influence the performance of the organization
3. And when HRA is entered in the model, the relationship between OP & TM is slightly altered but yet remains significant. This confirms the mediation of HRA on the relationship of OP & TM, but this mediation effect is partial. Although the effect of HR analytics is partial, it is evident that HR analytics does impact

the overall performance of the organization when Talent Management is properly managed.

4. From the study, it is evident that HR Analytics mediates a partial relation between Talent Management and Organization's performance. Even though the mediation effect is partial, still HR analytics plays a substantial part in managing the talent in the organization to improve performance.
5. HR Analytics thus helps the HR Professionals in the organization to focus on improving the performance and productivity of employees and harness talent identification, recruitment, development, retention and workforce planning.
6. Although HR Analytics has a partial mediation effect on the relation of Talent Management and Organization performance, it can be said that role of HR analytics cannot be neglected as it plays a significant role in the performance of the organization.
7. Thus the null hypothesis that there is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two is rejected.

8. It may, therefore, be said that HR analytics does have an impact on the overall performance of the organization when Talent Management is properly managed.

6.2.1.4: Findings of the objective 4: To study the relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two

Hypothesis 3: *There is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two*

1. When HR strategy namely Workforce Optimization along with HR analytics was included in overall business strategy certain changes were seen in the organizational performance.
2. When HR Analytics is not entered in the model, the estimate β of WO on OP is .79 and significant. It means that 79% of the variance of OP is explained by WO. Although optimization of workforce aids in boosting the performance of the organization, there are other factors that contribute to it too.

3. But when HR Analytics was entered into the model, the relationship between OP & WO has again slightly changed but yet still remains significant. This again confirms the mediation of HRA on the relationship of OP & WO, but this mediation effect is partial. This means that HR Analytics though helps in mediating the relation between optimization of workforce and Organizations performance but its effect is partial or impact of HR analytics is less. But it shows that though just a partial mediation effect, still, HR analytics play a significant role in mediating the relationship between workforce optimization and organization performance.

4. From the above study, it can be seen that HR Analytics mediates a partial relation between Workforce optimization and organizations performance. This means that HR Analytics though helps in mediating the relation partially between optimization of workforce and Organizations performance but its impact is less but still play a significant role.

5. Even though HR Analytics plays a small part, it does help in optimizing the workforce for improving the overall profitability through more effective workforce cost control.

6. Utilization of HR Strategy namely workforce optimization in overall business strategy with a hint of HR analytics as a mediator has also benefited the front line managers to improve employee performance and manage headcount.
7. HR Analytics as a part of the overall strategy, streamlines the internal HR systems of the organization thus contributing to better organizational performance.
8. Thus the null hypothesis that there is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two is rejected.
9. Hence it can be said that HR analytics does have an impact on the overall performance of the organization when the workforce is properly optimized.

6.2.1.5: Findings of the objective 5: To study HR Analytics as a precursor to organizational performance

1. From the review of the above results, it is evidence that HR Analytics though has a partial impact on organizational performance still contributes a significant amount.

2. HR Analytics acting as a mediator has proved to be beneficial for the better performance of the organization.

3. Although the organizational performance still goes on without the mediation effect still introducing HR analytics in the system has certainly given some better outlook of the problems which were hidden.

Hence adaptation of HR analytics though gives a partial effect on organizational performance but still proves to be a significant part of bigger picture.

4. Thus it can be said that HR Analytics is certainly a precursor to organizational performance.

6.3: SUMMARY OF THE FINDINGS:

So, from the study, it can be concluded that all the three HR Strategies like Workforce Optimization, Talent Management & Compensation Strategy, all get impacted in a desired manner or gets a significant lift when HR Analytics is introduced into the overall strategy formulation. Although HR Analytics does not have a complete dominant in the overall performance of the organization, still along with others measures HR Analytics has a lot to contribute to

optimizing the organization's performance. In the present business world of cut-throat competition, introducing HR Analytics can boost performance and give the organization a desired edge over its competitors.

HR analytics thus enables the managers to have a better understanding of how staffing levels, pay-for-performance, and employee performance correlate to employee retention.

Hence it is evident from the study that HR Analytics does play a significant role even though partially, in boosting the performance of the organizations as a whole. Therefore it can be concluded that HR Analytics is a precursor to organizations performance and compensation strategy formulation.

CHAPTER - VII

CONCLUSION,

RECOMMENDATIONS &

LIMITATIONS

CHAPTER VII

CONCLUSION, RECOMMENDATIONS & LIMITATIONS

7.1: INTRODUCTION

The simple objective of this segment is to sketch a summary and deliver the conclusion in the perspective of the established research objectives. This chapter introduces the summary of the entire research trailed by the recommendations and conclusion at the end. The scope of the study was also emphasized along with the exhaustive findings of the study which has become the core of this segment. The section also offers the importance of the research in the study.

7.2: SUMMARY OF THE RESEARCH

Organizations worldwide are racing to become the top market leader in their respective industries. For being the top dog in the market, every organization needs to make their overall business strategy more effective. As every organization needs humans as their asset so as to function more effectively, Human Resource Management becomes a crucial part their efficient strategy. Managing employees is not an easy task. Every individual is different. Each

employees response differently. Hence managing these human resources becomes a daunting task. Hence Organizations worldwide are required to bring about dramatic enhancements to their key business strategies to survive and develop in this progressively more competitive environment. Therefore, it is imperative that decision makers of the businesses be cognizant of their vision for implementing most carefully planned strategy as a fundamental measure of strategic planning for better service of the customers which will lead to better organizational performance.

Human Resources are regarded as a significant strength amongst the most vital resources of the present organizations. HR administration is essential than other focused sources in light of the fact that these individuals utilize different resources by creating intensity and recognizing organizational goals. But managing their human assets are not only challenging but it is also very time-consuming. But to attain this sustainable competitive upper hand, organizations today must renovate their HR system with their overall business purposes and goals. No functional area of any business is able to function if they deprived of the assistance of its workforce assets. Subsequently the greatest assets (human assets) of organizations today integrally impact the overall structure of the firm. Hence the workforce of the organizations becomes the key ingredient for a successful business.

But managing these human assets is not easy. As every individual is different, understanding the employees' mindset becomes tough. Hence HRM function needs to be more updated and more predictable to tackle the onset problems. These emerging glitches of handling human resources can now be solved with the arrival of the new IT technology called HR Analytics. HR Analytics is an area in the field of investigation that alludes to applying explanatory procedures to the human resource department of an organization in the expectation of enhancing better performance for an improvement rate of return.

HR Analytics is currently trending on the market. The entry of this new hi-tech has given hopes to every organization. Giant market leaders like Google have adopted this technology and within a short span of time become the top market leader. Business organizations worldwide have started to adopt HR Analytics as a part of new strategy implementation. But the current studies have shown that India though known to be the IT hub still lags behind in following the world. Hence the study has been undertaken to understand how HR Analytics aids in the performance of the organization and also how the inclusion of this technology helps in better strategic decision making.

This research gave its focus mainly on how various HR strategies can make an organization perform better and get a higher return on investments. The study mainly focuses on organizations in India, as there were very few studies that have been conducted about HR analytics in the Indian context. Hence this gave

a huge opportunity to fill the research gap which is clearly needed today. Regardless of the recognized impact of managing better HR strategies, a review of the related literature also indicates a lack of coherence and completeness in the conceptual work that attempts to provide managers with better concepts and tools for effectively dealing with these increasingly strategic elements. Moreover, very little empirical work has been carried out to analyze the influence of various HR strategies on organizational performance when HR analytics is used as a mediator in the Indian context. Hence the topic “HR Analytics as a precursor for Organizational Performance and Compensation strategy: An exploratory study in select Indian Organizations”.

The major tenacity of this study is to understand how various HR strategies namely compensation strategy, talent management, and workforce optimization aids in the better performance of the organization when HR analytics is used as a mediator. The study also aims to comprehend the crucial dimensions and variables to effectively manage the phenomenon. For reaching the aforesaid purpose, the study sets the following objectives:

1. To study the influence of HR strategies on Organizational Performance when mediated by HR analytics
2. To study the relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two

3. To study the relationship between talent management and organizational performance when HR analytics mediates the relation between the two
4. To study the relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two
5. To study HR Analytics as a precursor to organizational performance

In accomplishing the purpose and goals of this research, a conceptual framework has been developed to assist as an outline for the study of this research. For testing and validating the above objectives with a strong empirical support the following hypothesis was framed for testing the proposed integrated conceptual model:

H₀: *Influence of HR strategies on organizational Performance is not significantly mediated by HR analytics.*

The above hypothesis gives the holistic view of the integrated proposed model. In order to have an in-depth understanding of how each of the HR strategies works independently, this above hypothesis was further broken down into three sub-hypothesis as:

Hypothesis 1: *There is no significant relationship between compensation formulation and organizational performance when HR analytics mediates the relation between the two.*

Hypothesis 2: *There is no significant relationship between talent management and organizational performance when HR analytics mediates the relation between the two*

Hypothesis 3: *There is no significant relationship between workforce optimization and organizational performance when HR analytics mediates the relation between the two*

To gather an empirical evidence of the study two-pronged research strategy have been implemented for the purpose of the study: 1) a theoretical analysis for the development of the conceptual model, and 2) Structural Equation Modelling for testing the validity of the model. For achieving the purpose and objectives of this research, a conceptual framework has been developed after a rigorous review of related literatures from the previous research studies to serve as a map for researching on how HR analytics influence the HR strategies formulations which in turn leads to organizational performance thus directing to the empirical analysis of this study. Specific questions are developed based on the conceptual framework provided for this research.

To give a better understanding of how HR analytics influences the HR strategies to make an organization perform better a conceptual integrated model named Organizational Performance under HR analytics has been developed. For

validating this integrated structural model, Structural Equation Modelling has been used. Structural equation modeling or SEM is a statistical modeling technique which is used to test the relationships among the theoretical constructs which are represented by regression or path coefficients between the constructs. This type of technique requires quantitative data to test the reliability and validity of the model. Hence, structured standardized questionnaires have been developed which has been measured on 5 points Likert scale anchored with “Strongly disagree” (1) and “strongly agree” (5). The dataset contains 5 constructs and 14 items, each having multiple indicator variables namely Compensation Strategy formulation was measured by 2 items, Talent Management by three items, Workforce Optimization by three items, HR Analytics by three items, and finally Organizational Performance also by three items each. These constructs are basically an unobservable variable, hence it can only be defined in conceptual term but cannot be measured directly. So to measure these constructs, all the items of the construct together gives a measurable value which is measured indirectly by scrutinizing the reliability and validating of the measured variables.

To test the reliability and validity of the structural model, quantitative data was collected through questionnaires. About 70 organizations were initially contacted but only 25 organization responded which uses HR analytics as a part strategy formulation. About 500 sample was taken, 20 employees per organization out of which 410 respondents were considered valid. The study

was carried out from August 2015 until January 2017. The questionnaires were distributed through both email and personally.

The collected data was then fed into SPSS version 20 and then coded. Each item was meticulously scrutinized with the help of factor analysis until only 14 items were found to be perfectly correlated. The data was then again analyzed with the help of AMOS software version 23 for SEM analysis. The results of the analysis are as follows:

1. The integrated model of Proposed Conceptual Model of Organizational Performance under HR Analytics is indeed tested to a fit structural model. The three HR strategies do have a partial impact on the organization's performance. And when these three HR strategies are applied to organizations strategies simultaneously, it does have a significant influence on the overall performance of the organization. It means that along with the other functional strategies like marketing strategies, financial strategies, production & operation strategies etc. HR strategies also need to be included in the overall business strategies in order to have a better performance in the organization.
2. HRA does play a very vital role though only partial between CS and OP. Even though HRA contribute only 41% in mediating CS with OP, it does show that HRA has a certain effect in the formulation of compensation which in turn aids in the performance of the organization. So, it can be implied that for enhancing

the performance of the organization a sound compensation strategy needs to be formulated and for doing so the use of HR analytics gives a great advantage.

3. From the study, it is also evident that HR Analytics mediates a partial relation between Talent Management and Organization's performance. Even though the mediation effect is partial, still HR analytics plays a substantial part in managing the talent in the organization to improve performance. Therefore, HR Analytics has indeed helped the HR Professionals in the organization to focus on improving the performance and productivity of employees and harness talent identification, recruitment, development, retention and workforce planning.

4. From the above study, it can be seen that HR Analytics mediates a partial relation between Workforce optimization and organizations performance. This means that HR Analytics though helps in mediating the relation partially between optimization of workforce and Organizations performance but its impact is less but still play a significant role. Even though HR Analytics plays a small part, it does help in optimizing the workforce for improving the overall profitability through more effective workforce cost control.

Utilization of HR Strategy namely workforce optimization in overall business strategy with a hint of HR analytics as a mediator has also benefited the front line managers to improve employee performance and manage headcount. HR Analytics as a part of the overall strategy, streamlines the internal HR systems of the organization thus contributing to better organizational performance.

5. HR Analytics acting as a mediator has proved to be beneficial for the better performance of the organization. Although the organizational performance still goes on without the mediation effect still introducing HR analytics in the system has certainly given some better outlook of the problems which were hidden. Hence adaptation of HR analytics though gives a partial effect on organizational performance but still proves to be a significant part of bigger picture. Thus it can be said that HR Analytics is certainly a precursor to organizational performance.

Hence it can be concluded that the three HR strategies namely compensation strategy, talent management, and workforce optimization all have a strong effect some way or the other in a desired manner or gets a significant lift when HR Analytics is introduced into the overall strategy formulation. Although HR Analytics does not have a comprehensive dominant in the overall performance of the organization, but still along with others measures it has a lot to contribute to boosting the organization's performance. In the present business world of cut-

throat competition, introducing HR Analytics definitely can boost performance and give the organization a desired edge over its competitors.

7.3: RECOMMENDATIONS

The theoretical outline of organizational performance under HR Analytics offers quite a lot of significant contributions that mainly highlights some of the most imperative approaches that will not only enable the improvement in organizations performance but also help them to become the market leaders in their respective industries. The research findings have evidently revealed that there is certainly an imperative effect of implementing HR analytics in overall HR strategy formulation for better organizational performance. Hence, organizations are recommended as follows:

1. HR analytics must deeply be embedded in the manpower planning as it helps the HR Managers to keep a tap on their manpower requirements.
2. HR analytics a vital portion of overall strategy formulation as it supports the organizations to keep a track on their employees' performance and constantly watch which employees require training and development. Not only that, it also enables the Senior HR Professionals to plan a career and succession planning based on their records. Data which is stored in the database helps them to see which employees are performing exceptionally well and based on this, Senior Management is capable of planning better strategies for future top executives.

3. The biggest confrontation every organization faces presently is retaining their best talent. HR Analytics is able to foretell what their top talent requires based on their database and with the insightful information acquired, HR professionals will be able to strategize better package to retain their top talent. Analytics not only helps in retaining the best talent of the firm but also helps in forecasting future attrition by checking on their performance tails. Analytics mainly correlates many information about the employees that lie hidden in the data then cross-refer to the historical trends, that will show some indicators which matches with the current information. This will help in forecasting the future potential attrition of employees. With the help of such information either the managers can develop better strategies to retain their employees or make new strategies for new talent acquisitions.

4. HR analytics empowers HR professionals to establish and develop a possible course of action which are grounded on historical data. This HR analytics implement allows the HR Managers in the organization create the difference by creating an easily derive strategy that will attract the best candidate to hire with the help of the historical data. From the previous data, troubled patterns are highlighted and HR practitioners decide the future course of action.

5. HR analytics correspondingly supports the company by looking at the professional life of their employees through tracing, by involving and analyzing each of their performance-linked data. With the help of this software companies are able to track and document the behavior of its employees by means of their customers, associates and how the employees utilize their time. Additionally, the performance data of the employees are also used by the hiring manager to recognize the various talents. This insightful information derived from HR Analytics not only offers more understandings about the employees but also outline the strategies that will lift the morale of member of the staff, increase the retention rate, and formulate better engagement policies.

6. Organizations should have complete automation by integrating the entire process as one unit in place of integrating one part in isolation. Holistic integration of Analytics of all the functions is a must for better performance of the organization.

7. When we talk about analytics, it generates big data. Organizations in study lacks in analysis of these data which is already stored in the organizations. They are unable to filter the weeds from the shaft. But with the integration of analytics every organization can utilized such useful insights for better decision- making.

8. Organizations are still not clear about how integration is done. Every organization must understand the concept of global village which is still a vague idea for most of the organizations in India.

The study has revealed that in the present day in India, organizations are still in the infant stage when it comes to adaptation and implementation of HR Analytics as part of their overall strategy formulation. From this research, it is evident that use of HR Analytics is very much beneficial for the organization to perform better. Organizations will have a competitive edge if they adopt and implement HR Analytics for their HR strategy formulations. Analytics should be deeply embedded in the manpower planning as it understands not only where there should be major alterations to profitability but contributes the factors that possibly will affect these changes. This way it makes it possible for proper use of manpower and also gives a forecast about future requirements of the workforce and take better practical decisions for the workforce through constructive techniques.

From the above recommendations, the research has proved that it is not only experimental but in reality as well that the adaptation and implementation of HR Analytics as a vital part of the overall strategy formulation does, in fact, impact the overall business performance. By embedding Analytics in the organization's strategy formulation not only it can predict their future problems relating to manpower but also understand their staffs in the workplace and put together certain changes where it is needed to improve the performance of the

organization. HR analytics uses the multitude of data which is accessible in the organization, and after analyzing them this data provides for information which can be used in an actionable way benefiting both the business and its personnel. By linking the data it will track the contribution made by each employee to make a profit margin. It can be concluded that from the above facts that HR Analytics is a key ingredient for the organizational performance. Therefore it is evident and a fact that HR Analytics is not only vital but it is a precursor to the organizational performance.

7.4: LIMITATION OF THE STUDY

There is dependably an opportunity to get better and this research study is not an exception. The study depends on the reactions of the sample respondents. The aftereffects of the examination are influenced by these reactions and are liable to change in a greater or diverse sample. These restrictions should be tended to in future investigations.

Just like every other research, this study was also bounded by several limitations. The limitations can be noted as follows:

- The sample chosen for the study only included respondents from the companies that are using HR Analytics in the Indian context.
- The data collection was also restricted to relatively large cities of India since constraints were faced during data collection.

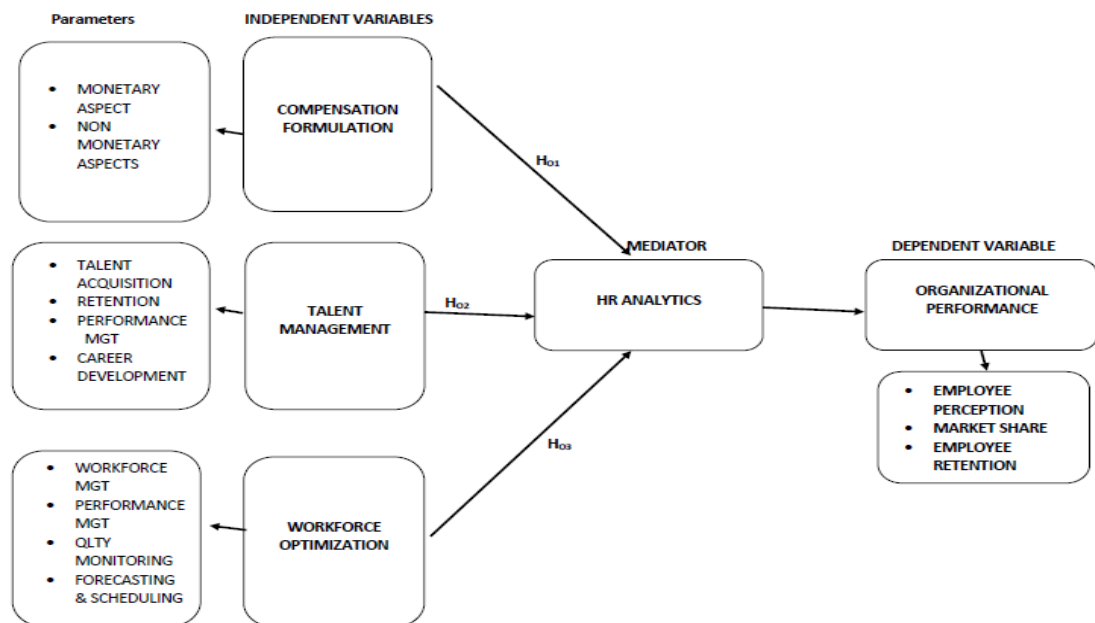
- The sample for the present-day study involves 410 employees of different sectors of the industries. This sample can be considered a minor proportion of the entire population of organizations in India. As a result, research studies with much larger sample size would be required for confirming suitable generalization of the results of the study.
- The current study mostly depended on the largely quantitative approach of data collection and as a result quite restrictive. And so, in the future mixed method approach where both quantitative and qualitative method of data collection should be undertaken in order to offer a wider outlook to the present research. Such as, the research plan can also include case study methodology or content analysis which can provide more holistic representation to the set subject.

7.5 CONCLUSION

Business houses worldwide are making an effort to keep its focus on the market, but for doing so its human assets needs to accomplish the organizational goals which are required. Several of its objectives are taken a cutting the cost, customer retention, expanding the number of clients, expanding the market rate, expanding item quality, creating innovative items, enhance profitability. HR is vital especially in accomplishing these performance indicators.

The above study has given an empirical evidence that right formulation of the HR strategies with the help of HR Analytics does help the organizations to have

better performance in the market. Properly planning and execution of HR strategies do have a huge impact on the overall business strategies. As human resources are a vital part of every organization, managing these employees gives an edge to every organization. Proper optimization of its workforce improves the company's employee performance and also helps in managing the headcount. Implementation of HR Analytics as a part of the overall strategy, benefits in streamlining the internal HR systems of the organization as a result, contributing to better organizational performance.



Conceptual Integrated Model: Organizations under HR Analytics

Thus the above integrated model has proved to be useful for better organizational performance. By adopting HR Analytics on the overall strategy

formulation, organizations can perform well thus giving them ample of opportunity to become the top market leader.

Every facet of the HR strategy needs to be included while framing an overall business strategy. The conceptual integrated model in this study supports that HR strategies directly affect the overall business outcomes, for instance, collective skills, talent management, and behaviors', and indirectly through HR analytics, these HR strategies improve organizational performance even more. Thus it can be said conclusively that HR Analytics is indeed a precursor to the organizational performance and framing compensation strategy.

7.6 CONTRIBUTION OF THE STUDY:

Every research conducted has one way or the other contributed to the society. Not every research leads to direct contribution to the society. But every research does have some impact on the society directly or indirectly. The study "HR Analytics as a precursor for Organizational Performance and compensation strategy: An Exploratory study in select Indian Organizations" also gave some partial significant contribution to the society.

1. As the study has shown the adaptation of HRA boost the performance of the organization hence have an emotional impact on the bottom line in quite a lot

of ways. When the organizations performs the cost benefit analysis it has shown increase thus, giving the employees better benefits packages which does help the families of the employees have a suitable lifestyle.

2. Also through this study has shown that organizations can have much better recruitment strategies. With the good strategy it can weed out the ways to lure the new candidates i.e. recruitment of people more suited for the job thus giving opportunity for unemployed people.
3. As the HR Analytics helps in detecting performances of the workforce, it can formulate strategies which will help the employees to reduce their stress level. A happy employees will have a better family life.
4. Organizations can track and forecast future needs. This enables them to formulate better policies which will benefit society in the long run.
5. HR experts are discovering that increase in employees' feelings of fitting within the firm boost morale and productivity. Happy employees not only performs better in the office but also have a stable family life.

7.7 DIRECTION FOR THE FUTURE RESEARCH:

1. This study was concentrated only in HR aspects hence, future the researchers should also include other functions of the management like marketing, financial, operations etc. that play a part in measuring the overall performance of the organizations.
2. Since only quantitative approach has been used in this study, future researchers should also include qualitative approach to clarify or give better meaning to the results.
3. This study has only included three major HR strategies that impacts organizational performance. Future research can take up more variables of HR strategies which will give more in-depth understanding about the subject.
4. As only 26 organizations of 13 sectors could be included in the research, hence sample size should be increased to a larger number to get better results.
5. The study only concentrated on the public and private sectors in India. Thus in future the study should expand to government offices as well to see the difference in performance of the organizations.

6. Even more aspects of HR Strategies should be included in the future research as more HR aspects play a different role in the performance of the organizations.

Finally, it is hoped that this study would be beneficial to all the relevant parties involved in the Indian organizations.

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ANNEXURES

ANNEXURES

A. QUESTIONNAIRE

DECLARATION

Dear Respondent,

I, Weena Yancey M Momin, PhD. Research Scholar of Babasaheb Bhimrao Ambedkar University, Lucknow, would request you kindly to fill up the questionnaire, which is the part of my PhD. Research thesis. The information required is purely for the research purpose and your individual response will be kept completely confidential. This question is designed to facilitate a study of application of HR Analytics in Indian Organizations. You have been identified as one of the resourceful person and as such you are kindly requested to spare some of your valuable time and respond to the questions/ statements as frankly as possible. Thank you for your participation.

SECTION – A: Demographic Profile

NAME:

AGE:

GENDER:

EDUCATIONAL

QUALIFICATION:

DESIGNATION:

WORKING EXPERIENCE:

FILTERING QUESTION:

Whether the organization you work for uses HR Analytics (IT softwares viz. SAP, ERP, OrgView, Vibe HCM, Career Plug etc.) for Human Resource Management.

- Yes
- No

SECTION -B: Tick mark on the scale which you agree with.

SD: Strongly Disagree =1, D: Disagree = 2, N: Neutral = 3, A: Agree = 4, SA: Strongly Agree = 5 .

1. COMPENSATION STRATEGY:

SL NO.	STATEMENT	SD	D	N	A	SA
1	Compensation system encourages employees to accept organizational mission and vision	1	2	3	4	5
2	Compensation policy of the company motivates employees to perform better to attain organizational goals	1	2	3	4	5
3	Fringe benefits provided by the company are good	1	2	3	4	5
4	Compensation is linked with performance appraisal system in practice	1	2	3	4	5
5	Over time salary is norm than exception	1	2	3	4	5
6	Performance based incentives are given by the company	1	2	3	4	5
7	Yearly bonus scheme is well designed	1	2	3	4	5
8	Basic salary structure is amongst the best in the industry	1	2	3	4	5

2. TALENT MANAGEMENT:

SL NO.	STATEMENT	SD	D	N	A	SA
1	The company good working conditions and fair wages has enabled it to attract the right talents	1	2	3	4	5
2	My company ensures employees are satisfied and motivated all the time.	1	2	3	4	5
3	Performance exceptions are clearly communicated in my organization	1	2	3	4	5
4	My organization follows systematic approach for performance analysis	1	2	3	4	5
5	Employees are encourage to acquire new skills to perform better	1	2	3	4	5
6	My company plans on employee growth and progression	1	2	3	4	5

3. WORKFORCE OPTIMIZATION

SL NO.	STATEMENT	SD	D	N	A	SA
1	Organizations links the staff level with performance goals	1	2	3	4	5
2	HR Cost is managed effectively	1	2	3	4	5
3	Manpower Planning is performed scientifically	1	2	3	4	5
4	Manpower quality is rigorously monitored in the organization	1	2	3	4	5
5	Employees are well trained enabling them to deliver better information and improve the customer experience.	1	2	3	4	5

4. ORGANIZATIONAL PERFORMANCE

SL NO.	STATEMENT	SD	D	N	A	SA
1	Organization is paying dividend to its shareholders.	1	2	3	4	5
2	Market position of the organization is increasing over the year.	1	2	3	4	5
3	Customer preference for companies product is higher	1	2	3	4	5
4	Share prices of the company is performing well	1	2	3	4	5
5	Employees getting better career in an organization is performing well	1	2	3	4	5

5. HR ANALYTICS

SL NO.	STATEMENT	SD	D	N	A	SA
1	*ICT is used comprehensively for Manpower Planning	1	2	3	4	5
2	Knowledge management is practiced in my organization	1	2	3	4	5
3	Data is collected and analyzed for HR decisions in the organization	1	2	3	4	5
4	HR Department is well equipped with ICT and analytics tools.	1	2	3	4	5
5	Organizations use HR Analytics as crucial linkage in strategic decision making.	1	2	3	4	5

**ICT – Information & Communication Technology*

B. LIST OF SURVEYED ORGANIZATIONS

INDUSTRIAL SECTORS	NAME OF ORGANIZATIONS	SURVEYED LOCATION
<i>Automobile Sector</i>	<ul style="list-style-type: none"> Continental Motor Maruti Suzuki 	Bangalore New Delhi
<i>Banking Sector</i>	<ul style="list-style-type: none"> Canara Bank Punjab National Bank 	New Delhi New Delhi
<i>BPO sector & KPO sector</i>	<ul style="list-style-type: none"> Infosys Evaluserve.com Pvt Ltd, 	Bangalore Gurgaon
<i>Insurance sector</i>	<ul style="list-style-type: none"> HDFC Insurance Kodak Mahindra 	Lucknow Noida
<i>IT sector</i>	<ul style="list-style-type: none"> HCL Mphasis NTT data 	New Delhi Bangalore Noida, Gurgaon
<i>Infrastructure & Construction sector</i>	<ul style="list-style-type: none"> Daelim industrial corporation ltd NCC Ltd. 	Mumbai Lucknow
<i>Oil Sector</i>	<ul style="list-style-type: none"> Indian Oil HPCL Brahmaputra Crackers and Polymers Ltd. 	Lucknow Kolkata Dibrugarh, Assam
<i>Pharmaceutical Sector</i>	<ul style="list-style-type: none"> Glaxosmithkline Pvt Ltd 	Lucknow
<i>Public power sector</i>	<ul style="list-style-type: none"> NTPC Ltd 	Unchahar
<i>Public Sector</i>	<ul style="list-style-type: none"> Central Works Commission 	New Delhi
<i>Retail sector</i>	<ul style="list-style-type: none"> Aditya Birla Pantaloons Westside 	Bangalore Mumbai
<i>Service Sector</i>	<ul style="list-style-type: none"> IBM Timesol facility Management Dell International Services 	Hyderabad Bangalore Pune
<i>Telecom sector</i>	<ul style="list-style-type: none"> Vodafone Reliance Jio 	Lucknow Lucknow

C. DEMOGRAPHIC INFORMATION OF THE STUDY SAMPLE

a. EDUCATIONAL QUALIFICATIONS OF THE RESPONDENTS

Qualifications	Degree name	No. of respondents
Under grad	10+2	29
Graduate	Normal graduates	61
	Engineers	100
	Other Professional Degree	23
Post Graduates	MA	24
	MCOM	45
	MBA	87
	MSc	7
	Mtech	14
Others	Diploma Holders	20
TOTAL NO. OF RESPONDENTS		410

b. GENDER

EMPLOYEE CHARACTERISTICS		FREQUENCY	PERCENTAGE
GENDER	MALE	246	67
	FEMALE	164	33
TOTAL		410	100%

c. *DESIGNATIONS*

CHARACTERISTICS		FREQUENCY	PERCENTAGE
LEVEL OF MANAGEMENT	TOP EXECUTIVES	28	7
	MANAGERS	187	45
	LOWER LEVEL MANAGERS	128	32
	OTHERS	67	16
TOTAL		410	100

d. *EXPERIENCES*

CHARACTERISTICS		FREQUENCY	PERCENTAGE
EXPERIENCE	Less than 2 yrs	110	25
	02 - 05 yrs	188	47
	05 - 08 yrs	84	20
	08- 11 yrs	25	7
	more than 11 yrs	3	1
TOTAL		410	100

D. CRONBACH ALPHA RELIABILITY AND VALIDITY TEST RESULTS

a. COMPENSATION STRATEGY

Case Processing summary

		N	%
CASES	VALID	410	100
	EXCLUDED	0	0
	TOTAL	410	100

Reliability Statistics

CRONBACH'S ALPHA	N OF ITEMS
.843	3

b. TALENT MANAGEMENT

Case Processing Summary

		N	%
CASES	VALID	410	100
	EXCLUDED	0	0
	TOTAL	410	100

Reliability Statistics

CRONBACH'S ALPHA	N OF ITEMS
.812	3

c. WORKFORCE OPTIMIZATION

Case Processing Summary

		N	%
CASES	VALID	410	100
	EXCLUDED	0	0
	TOTAL	410	100

Reliability Statistics

CRONBACH'S ALPHA	N OF ITEMS
.854	3

d. ORGANIZATIONAL PERFORMANCE

Case Processing Summary

		N	%
CASES	VALID	410	100
	EXCLUDED	0	0
	TOTAL	410	100

Reliability Statistics

CRONBACH'S ALPHA	N OF ITEMS
.823	3

e. HR ANALYTICS

Case Processing Summary

		N	%
CASES	VALID	410	100
	EXCLUDED	0	0
	TOTAL	410	100

Reliability Statistics

CRONBACH'S ALPHA	N OF ITEMS
.847	3

E. STRUCTURAL EQUATION MODELLING DATA

a. SUMMARY DATA OF MEASUREMENT MODEL RELIABILITY AND VALIDITY

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	40	355.574	80	.062	66
Saturated model	120	.000	0		
Independence model	15	3041.317	105	.000	28.965

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.041	.897	.846	.598
Saturated model	.000	1.000		
Independence model	.270	.342	.248	.299

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.883	.847	.907	.877	.906
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.762	.673	.690
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	275.574	220.862	337.832
Saturated model	.000	.000	.000

Model	NCP	LO 90	HI 90
Independence model	2936.317	2760.060	3119.889

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.869	.674	.540	.826
Saturated model	.000	.000	.000	.000
Independence model	7.436	7.179	6.748	7.628

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.041	.082	.102	.000
Independence model	.261	.254	.270	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	435.574	438.831	596.220	636.220
Saturated model	240.000	249.771	721.939	841.939
Independence model	3071.317	3072.539	3131.560	3146.560

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.065	.931	1.217	1.073
Saturated model	.587	.587	.587	.611
Independence model	7.509	7.078	7.958	7.512

HOELTER

Model	HOELTER	HOELTER
	.05	.01
Default model	118	130
Independence model	18	20

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
WO5 <--- WO	1.000				
WO3 <--- WO	1.502	.160	9.398	***	par_1
WO1 <--- WO	1.603	.168	9.521	***	par_2
CS7 <--- CS	.828	.078	10.605	***	par_3
CS6 <--- CS	1.000				
TM3 <--- TM	1.175	.107	10.943	***	par_4
TM4 <--- TM	1.400	.119	11.796	***	par_5
TM1 <--- TM	1.000				
HRA5 <--- HRA	.977	.033	29.863	***	par_6
HRA3 <--- HRA	.922	.038	24.370	***	par_7
HRA4 <--- HRA	1.000				
OP3 <--- OP	1.020	.080	12.733	***	par_8
OP2 <--- OP	1.000				
OP4 <--- OP	1.050	.081	13.006	***	par_9
cs5 <--- CS	.705	.081	8.663	***	par_20

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
WO5 <--- WO	.715
WO3 <--- WO	.806
WO1 <--- WO	.826
CS7 <--- CS	.870
CS6 <--- CS	.806
TM3 <--- TM	.892
TM4 <--- TM	.802
TM1 <--- TM	.838
HRA5 <--- HRA	.907
HRA3 <--- HRA	.828
HRA4 <--- HRA	.940
OP3 <--- OP	.814
OP2 <--- OP	.728
OP4 <--- OP	.833
cs5 <--- CS	.518

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
CS <--> OP	.127	.028	4.516	***	par_10

	Estimate	S.E.	C.R.	P	Label
CS <--> TM	.264	.034	7.796	***	par_11
WO <--> CS	.183	.027	6.775	***	par_12
CS <--> HRA	.250	.038	6.526	***	par_13
WO <--> TM	.150	.023	6.664	***	par_14
TM <--> HRA	.224	.032	6.961	***	par_15
TM <--> OP	.134	.024	5.625	***	par_16
WO <--> HRA	.238	.031	7.600	***	par_17
WO <--> OP	.194	.026	7.395	***	par_18
HRA <--> OP	.360	.038	9.369	***	par_19

Correlations: (Group number 1 - Default model)

	Estimate
CS <--> OP	.331
CS <--> TM	.764
WO <--> CS	.704
CS <--> HRA	.452
WO <--> TM	.700
TM <--> HRA	.491
TM <--> OP	.421
WO <--> HRA	.695
WO <--> OP	.809
HRA <--> OP	.708

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
WO	.161	.031	5.149	***	par_21
CS	.418	.060	7.008	***	par_22
TM	.286	.044	6.534	***	par_23
HRA	.729	.059	12.394	***	par_24
OP	.354	.045	7.812	***	par_25
e1	.448	.034	13.324	***	par_26
e2	.366	.032	11.297	***	par_27
e3	.373	.034	10.860	***	par_28
e7	.352	.033	10.645	***	par_29
e8	.422	.043	9.802	***	par_30
e10	.429	.038	11.184	***	par_31
e11	.310	.038	8.198	***	par_32
e12	.415	.035	12.011	***	par_33
e14	.150	.017	9.048	***	par_34

	Estimate	S.E.	C.R.	P	Label
e15	.284	.023	12.101	***	par_35
e16	.096	.015	6.460	***	par_36
e18	.354	.032	11.123	***	par_37
e19	.314	.029	10.842	***	par_38
e20	.337	.031	10.744	***	par_39
e21	.569	.045	12.720	***	par_40

Matrices (Group number 1 - Default model)

Factor Score Weights (Group number 1 - Default model)

	cs 5	O P4	O P2	O P3	HR A4	HR A3	HR A5	T M 1	T M 4	T M 3	C S6	C S7	W O1	W O3	W O5
O P 10	-.010	.187	.192	.173	.070	.022	.044	.000	.000	.000	-.020	-.020	.075	.071	.039
H R A 03	.003	.021	.022	.019	.465	.145	.290	.004	.008	.005	.006	.005	.013	.012	.007
T M 27	.027	.000	.000	.000	.019	.006	.012	.125	.235	.143	.051	.051	.035	.033	.018
C S 18	.118	-.026	-.027	-.024	.024	.008	.015	.052	.098	.059	.226	.224	.072	.068	.037
W O 21	.021	.054	.056	.050	.032	.010	.020	.019	.037	.022	.040	.039	.106	.101	.055

g. SUMMARY DATA OF ASSESS THE STRUCTURAL MODEL VALIDITY

Number of variables in your model: 7
 Number of observed variables: 5
 Number of unobserved variables: 2
 Number of exogenous variables: 5
 Number of endogenous variables: 2

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	2	0	0	0	0	2
Labeled	0	0	0	0	0	0
Unlabeled	7	3	5	0	0	15
Total	9	3	5	0	0	17

Variable	min	max	skew	c.r.	kurtosis	c.r.
WO1	1.000	5.000	-.956	-7.906	1.669	6.897
TM1	2.000	5.000	-.564	-4.659	-.362	-1.497
CS1	2.000	5.000	-.181	-1.497	-.656	-2.710
HRA1	1.000	5.000	-.954	-7.886	1.464	6.051
OP1	1.000	5.000	-1.025	-8.476	1.262	5.217
Multivariate					12.290	14.871

Observation number	Mahalanobis d-squared	p1	p2
246	28.268	.000	.013
319	28.268	.000	.000
338	28.268	.000	.000
359	28.268	.000	.000
384	28.268	.000	.000
203	20.956	.001	.000
235	19.853	.001	.000
292	19.853	.001	.000
308	19.853	.001	.000
321	19.853	.001	.000
372	19.853	.001	.000
373	19.853	.001	.000
391	19.853	.001	.000
400	19.853	.001	.000
242	16.752	.005	.000
315	16.752	.005	.000

Observation number	Mahalanobis d-squared	p1	p2
334	16.752	.005	.000
355	16.752	.005	.000
110	16.733	.005	.000
325	16.733	.005	.000
377	16.733	.005	.000
402	16.733	.005	.000
114	16.201	.006	.000
9	16.002	.007	.000
93	13.549	.019	.000
230	13.549	.019	.000
287	13.549	.019	.000
303	13.549	.019	.000
398	13.549	.019	.000
5	11.798	.038	.001
232	11.583	.041	.001
289	11.583	.041	.000
305	11.583	.041	.000
329	11.446	.043	.000
404	11.446	.043	.000
18	10.287	.068	.066
200	9.739	.083	.321
89	9.718	.084	.278
205	9.431	.093	.468
41	9.003	.109	.791
150	9.003	.109	.741
199	8.803	.117	.843
231	8.803	.117	.801
288	8.803	.117	.754
304	8.803	.117	.702
226	8.737	.120	.709
267	8.737	.120	.654
283	8.737	.120	.595
131	8.668	.123	.609
11	8.535	.129	.689
49	8.001	.156	.970
139	8.001	.156	.959
158	8.001	.156	.945
67	7.750	.171	.987
219	7.706	.173	.987
260	7.706	.173	.981

Observation number	Mahalanobis d-squared	p1	p2
276	7.706	.173	.974
26	7.435	.190	.996
36	7.435	.190	.994
126	7.435	.190	.992
145	7.435	.190	.988
92	7.375	.194	.990
173	7.375	.194	.986
118	7.140	.210	.998
91	7.109	.213	.998
196	7.109	.213	.996
61	7.097	.214	.995
128	7.066	.216	.995
191	7.002	.220	.996
104	6.988	.222	.995
217	6.949	.224	.996
258	6.949	.224	.994
274	6.949	.224	.991
350	6.949	.224	.987
371	6.949	.224	.983
395	6.949	.224	.977
212	6.841	.233	.988
253	6.841	.233	.984
345	6.841	.233	.978
366	6.841	.233	.971
392	6.841	.233	.962
17	6.589	.253	.995
187	6.500	.261	.997
3	6.444	.265	.998
14	6.444	.265	.997
99	6.333	.275	.999
180	6.333	.275	.999
154	6.329	.276	.998
174	6.307	.277	.998
198	6.307	.277	.997
193	6.122	.295	1.000
194	6.097	.297	1.000
48	5.917	.314	1.000
138	5.917	.314	1.000
157	5.917	.314	1.000
24	5.717	.335	1.000

Observation number	Mahalanobis d-squared	p1	p2
74	5.717	.335	1.000
211	5.717	.335	1.000
252	5.717	.335	1.000
344	5.717	.335	1.000

Number of distinct sample moments: 15
Number of distinct parameters to be estimated: 15
Degrees of freedom (15 - 15): 0

RR. Estimates (Group number 1 - Default model)
SS. Scalar Estimates (Group number 1 - Default model)
TT. Maximum Likelihood Estimates
UU. Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
HRA1 <--- CS1	.184	.048	3.852	***	par_1
HRA1 <--- TM1	.088	.046	1.906	.047	par_3
HRA1 <--- WO1	.205	.044	4.683	***	par_4
OP1 <--- HRA1	.288	.051	5.646	***	par_2
OP1 <--- WO1	.473	.046	10.213	***	par_5
OP1 <--- TM1	.095	.048	1.968	.049	par_6
OP1 <--- CS1	.021	.050	.417	.031	par_7

VV. Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
HRA1 <--- CS1	.481
HRA1 <--- TM1	.092
HRA1 <--- WO1	.226
OP1 <--- HRA1	.242
OP1 <--- WO1	.438
OP1 <--- TM1	.083
OP1 <--- CS1	.017

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
CS1 <--> WO1	.075	.035	2.154	.031	par_8
TM1 <--> WO1	.189	.038	4.993	***	par_9
CS1 <--> TM1	.082	.033	2.474	.013	par_10

Correlations: (Group number 1 - Default model)

	Estimate
CS1 <--> WO1	.107
TM1 <--> WO1	.255
CS1 <--> TM1	.123

WW. Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
CS1	.625	.044	14.300	***	par_11
TM1	.701	.049	14.300	***	par_12
WO1	.788	.055	14.300	***	par_13
e1	.572	.040	14.300	***	par_14
e2	.610	.043	14.300	***	par_15

XX.Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
HRA1	.116
OP1	.336

YY.Matrices (Group number 1 - Default model)

ZZ. Residual Covariances (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1	OP1
WO1	.000				
TM1	.000	.000			
CS1	.000	.000	.000		
HRA1	.000	.000	.000	.000	
OP1	.000	.000	.000	.000	.000

AAA. Standardized Residual Covariances (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1	OP1
WO1	.000				
TM1	.000	.000			
CS1	.000	.000	.000		
HRA1	.000	.000	.000	.000	
OP1	.000	.000	.000	.000	.000

BBB. Total Effects (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1
HRA1	.205	<u>.088</u>	.184	.000

	WO1	TM1	CS1	HRA1
OP1	.532	.120	.032	.288

CCC. Standardized Total Effects (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1
HRA1	.226	.092	.181	.000
OP1	.493	.105	.027	.242

DDD. Direct Effects (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1
HRA1	.205	.088	.184	.000
OP1	.473	.095	.021	.288

EEE. Standardized Direct Effects (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1
HRA1	.226	.092	.181	.000
OP1	.438	.083	.067	.002

FFF. Indirect Effects (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1
HRA1	.000	.000	.000	.000
OP1	.059	.026	.053	.000

GGG. Standardized Indirect Effects (Group number 1 - Default model)

	WO1	TM1	CS1	HRA1
HRA1	.000	.000	.000	.000
OP1	.050	.022	.044	.000

	M.I.	Par Change
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	M.I.	Par Change
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	M.I.	Par Change
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Iteration	Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTriess	Ratio
0	e 0	11.668		9999.000	142.653	0	9999.000
1	e 0	5.648		.464	39.400	3	.000
2	e 0	4.866		.279	2.831	1	.970
3	e 0	5.922		.097	.040	1	1.072
4	e 0	6.291		.014	.000	1	1.012
5	e 0	6.171		.000	.000	1	1.000

	par_r_1	par_r_2	par_r_3	par_r_4	par_r_5	par_r_6	par_r_7	par_r_8	par_r_9	par_r_0	par_r_1	par_r_1	par_r_1	par_r_1	par_r_1
par_r_1	.002														
par_r_2	.000	.003													
par_r_3	.000	.000	.002												
par_r_4	.000	.000	.000	.002											
par_r_5	.000	.001	.000	.000	.002										
par_r_6	.000	.000	.000	.000	.000	.002									
par_r_7	.000	.000	.000	.000	.000	.000	.003								
par_r_8	.000	.000	.000	.000	.000	.000	.000	.001							
par_r_9	.000	.000	.000	.000	.000	.000	.000	.000	.001						
par_r_0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001					
par_r_1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001				
par_r_1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002			
par_r_1	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.002		

	pa r_ 1	pa r_ 2	pa r_ 3	pa r_ 4	pa r_ 5	pa r_ 6	pa r_ 7	pa r_ 8	pa r_ 9	par _1 0	par _1 1	par _1 2	par _1 3	par _1 4	par _1 5
par _1 3	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 01	.00 0	.00 0	.00 0	.00 3		
par _1 4	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.00 0	.00 0	.00 0	.00 0	.00 2	
par _1 5	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.00 0	.00 0	.00 0	.00 0	.00 0	.00 2

	pa r_ 1	pa r_ 2	pa r_ 3	pa r_ 4	pa r_ 5	pa r_ 6	pa r_ 7	pa r_ 8	pa r_ 9	par _1 0	par _1 1	par _1 2	par _1 3	par _1 4	par _1 5
par _1 0	1. 00 0														
par _2 0	.0 00	1. 00 0													
par _3 0	- .1 00	.0 00	1. 00 0												
par _4 0	- .0 79	.0 00	- .2 45	1. 00 0											
par _5 0	.0 00	- .2 26	.0 00	.0 00	1. 00 0										
par _6 0	.0 00	- .0 94	.0 00	.0 00	- .2 16	1. 00 0									
par _7 0	.0 00	- .1 87	.0 00	.0 00	- .0 33	- .0 80	1. 00 0								
par _8 0	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	1. 00 0							
par _9 0	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.1 45	1. 00 0							

	pa r_ 1	pa r_ 2	pa r_ 3	pa r_ 4	pa r_ 5	pa r_ 6	pa r_ 7	pa r_ 8	pa r_ 9	par _1 0	par _1 1	par _1 2	par _1 3	par _1 4	par _1 5
par _1 0	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.2 64	.1 33	1.0 00					
par _1 1	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.1 51	.0 18	.17 3	1.0 00				
par _1 2	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 44	.3 49	.17 3	.01 5	1.0 00			
par _1 3	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.1 51	.3 49	.03 8	.01 1	.06 5	1.0 00		
par _1 4	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.00 0	.00 0	.00 0	.00 0	1.0 00	
par _1 5	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.0 00	.00 0	.00 0	.00 0	.00 0	.00 0	1.0 00

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	42	468.439	94	.000	4.983
Saturated model	136	.000	0		
Independence model	16	3622.117	120	.000	30.184

Model	RMR	GFI	AGFI	PGFI
Default model	.048	.877	.822	.606
Saturated model	.000	1.000		
Independence model	.291	.303	.210	.267

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.915		1.000		.909
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Model	PRATIO	PNFI	PCFI
Default model	.000	.000	.000
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

Model	NCP	LO 90	HI 90
Default model	.000	.000	.000
Saturated model	.000	.000	.000
Independence model	244.167	195.898	299.862

Model	FMIN	F0	LO 90	HI 90
Default model	.000	.000	.000	.000
Saturated model	.000	.000	.000	.000
Independence model	.621	.597	.479	.733

Model	RMSEA	LO 90	HI 90	PCLOSE
Independence model	.061	.219	.271	.000

Model	AIC	BCC	BIC	CAIC
Default model	30.000	30.447	90.242	105.242
Saturated model	30.000	30.447	90.242	105.242
Independence model	264.167	264.316	284.248	289.248

Model	ECVI	LO 90	HI 90	MECVI
Default model	.073	.073	.073	.074
Saturated model	.073	.073	.073	.074
Independence model	.646	.528	.782	.646

Model	HOELTER	HOELTER
	.05	.01
Default model		
Independence model	30	38

Minimization: .000
 Miscellaneous: .156
 Bootstrap: .000
 Total: .156