An exploration of how Artificial Intelligence is impacting Recruitment and Selection process

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I declare that this dissertation that I have submitted to Dublin Business School for the award of Master of Business Administration in Information Systems, is the result of my own investigations, except where otherwise stated, where it is clearly acknowledged by references. Furthermore, this work has not been submitted for any other degree.

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ABSTRACT

Globalization, information technology and recent social trends, have added more pressure on organizations to redefine themselves and update. There has been an increasing trend of adopting Artificial Intelligence (AI) technologies within the business environment throughout the last two decades. This dissertation presents the stance of the Human Resources recruitment and selection, an aspect of HR management, regarding incorporating AI solutions. This dissertation presents an unbiased literature review depicting the different perspectives put forward by various authors regarding adoption of AI, future and risk associated with AI in recruitment.

The data for this dissertation were gathered via online survey questionnaire and were analyzed. It has been concluded that AI provides promising solutions for recruiters to optimize recruitment process by taking over time-consuming repetitive tasks such as sourcing and screening applicants. But there have been issues over cost of development of such systems, security, etc. such concerns, are noted and discussed in-depth in this dissertation.
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CHAPTER 1. INTRODUCTION

1.1 General Introduction

Influenced by the proliferation of technology and its applications to other industries, the growth of the IT industry presents challenges for Human Resource management all over the world. A shortage of skilled workers has increased as the demand for specific skill sets continues to outpace the supply of suitable candidates. As a result, global competition for talent has amplified and the traditional power balance in recruiting has shifted from employers/recruiters to candidates and employees. The HR department, hiring managers and private recruiting firms are under pressure to find the desired candidates who is most suitable for the job. For this reason, companies are developing new strategies to increase their attractiveness – with bonuses, increased pay, additional career progression opportunities, etc. – to attract and retain valuable employees (Onag, 2015). Companies are investing heavily in technology as well to hire talent from the industry. As per latest industry norms, Artificial Intelligence, data mining, pattern matching and keyword matching are some of the technologies on which most of the Human resource activities are getting dependent on. This dissertation aims to research about how AI-based technologies are used during the recruitment and selection process and whether they help in recruiting best talent from the industry or not. The topic for this dissertation demonstrates how important the use of latest technology in recruitment and selection is.

1.2 Background of Study

Gusdorf, Myrna (2008) explained, recruitment is the process of actively seeking out, finding and hiring candidates for a specific position or job role. The recruitment definition includes the entire hiring process, right from inception of the hiring process to the individual recruit’s integration and on-boarding into the company. Recruitment is not short-term process. It involves many steps, from job postings to using different software to shortlist candidates and finally finding the best-fit for the company and role. Candidates are screened and interviewed by predetermined criteria as per company’s requirement. When the best-fit candidate is identified, they are hired and integrated into the workplace, and the recruitment process is complete. Falling behind on recruiting thus becomes a competitive issue. Additionally, a survey of hiring managers in the IT industry reported that 65% of IT managers were being negatively impacted with skill shortage (Randstad Technologies, 2014). Thus, recruitment and selection is the most important discipline from a company’s prospect. Failing this, may result in loss of competitive edge in the market.
This is the reason companies are constantly aiming towards streamlining their HR processes with the help of new technologies.

Artificial Intelligence has given many modified methods of doing things in recent times. It has changed the manner in which we use do stuff and how we do it. From virtual assistants to navigations, everything involves the application of Artificial Intelligence. Being a pervasive part of our lives, Artificial Intelligence is used widely by more than two-thirds of today’s population and specifically the consumer sector (Grosz and Stone, 2018). It is actually an interesting fact that most of the AI users are applying it without knowing much of its importance. And when it comes to businesses, they are going bonkers over this technology as it helps them in a bunch of ways. AI has become the backbone of several organizations by enhancing their efficiencies in terms of work, providing them with a variety of ways to perform powerful use data engineering as well as data analytics and assist them in attaining improved customer management and retention. And now it has made its way into the HR sector as well which is great help for all the Human Resource leaders trying to create tactful talent strategies and bring out results.

Talent acquisition leaders reported that their hiring volume will increase every year but their recruiting teams will remain the same size or even decrease. This means recruiters will be expected to become more efficient by “doing more with less.” Manually screening resumes is still the most time-consuming part of recruiting, especially when 75% to 88% of the resumes received for a role are unqualified. As discussed by Lal, Prerna (2015), Candidate screening is a very important process in the entire recruitment process. Screening process helps HR’s with initial filtering of candidates and narrow down the received applications from many applications to few. Hiring teams have data pouring in from a variety of sources. In a fully digital HR ecosystem, it is difficult to process and analyze all these disparate data streams. AI can actually help transforming how HR managers view, select, and operate candidate screening. AI for recruiting is the application of artificial intelligence, such as the learning or problem-solving that a computer can do, to the recruitment function. This new technology is designed to streamline or automate some part of the recruiting workflow, especially repetitive, high-volume tasks. The promise of AI for improving quality of hire lies in its ability to using data to standardize the matching between candidates’ experience, knowledge, and skills and the requirements of the job. The benefits using AI are manifold; recruiters don’t have to sift through crowded job markets or endless candidate lists. This makes HR processes quite easy and faster.
1.3 Research Gap, Research Objective and Significance

As seen the introduction of various variable in above section, now in this sub-section, previous research works and what this research will add-on, will be discussed. As argued by Abraham et al. (2015), that there is a particular gap in the literature regarding recruitment and selection processes in industry. They indicate that the studies available, investigate general Human Resource practices related to job satisfactions, organizational performance and productivity rather than hiring methods and technologies used for hiring. All previous researches are based on how information technology is transforming Human Resource process, which is very broad research. Though AI is an application of Information technology, but is relevantly different and new area of study and technology.

AI and its associated technology like data mining, machine learning, Natural Language processing (NLP), key-word matching, etc. are relatively new fields and by every passing day, new developments in these technologies are published. Software like Ideal, Textio, Zoom.ai, etc. are some the current AI-based hiring software present in industry (Source – ideal.com, 2019). They are capable of screening and shortlisting candidates by analyzing rich candidate information such as resumes, assessments, conversations and performance data. A bonus benefit is that it works within your existing ATS eliminating the need to learn a whole new software Considering that Artificial Intelligence is very broad field and is still evolving, there is not much of researches regarding its application in HR process that have been carried out. The shift towards AI-based software over the traditional methods is because AI promises to be technology of future and its relatively high prediction models, techniques makes it interesting to study.

Chief Objectives of the Research

- The chief objective of this study is to identify the role of AI-based software in hiring best talent from industry.
- To evaluate the function of AI-based software specifically towards the screening process which is the primary process of hiring and cost of using such systems.
- To understand the effect of AI-based software on recruiters job.

Hypothesis of the Research

The study aims at testing an established hypothesis in area of AI-based software and hiring processes. The hypothesis of the study are:
- **H1.** AI-based recruitment software does help the recruiters to identify best talent pool
- **H0.** AI-based recruitment software does not help the recruiters to best talent pool

This research will pave a path for the organisations to have better view of their hiring practices and will be able to decide whether investing in AI-based software, yields desired result. Software developers who wants to develop AI-based software for HR’s, would also be benefitted from this research as they will be having better understanding of problem areas which will be highlighted in this study. Academic researchers, who wants to study the various patterns in the hiring process will also be benefited from this research as they will have access to insights showcased in this research.

### 1.4 Research Question

This study aims to identify the best practices for use of AI-based software for recruitment. The overarching research question thus is the following:

*"Does AI-based hiring software help recruiters identify best talent pool?"*

As part of the central research question, this study is particularly interested in finding the usefulness of AI-based software towards hiring practices. The main goal is to make recommendations to recruiter on can they effectively use these resource to make themselves more attractive in the face of competition.

In order to be able to sufficiently answer this question, the literature in recruitment, AI, Risk of using AI, etc. will be reviewed. As the technology advances, recruitment and hiring processes, have also undergone many structural changes in relation with technology and adaptation. AI is been deemed as new big thing for recruitment. For this reason, the motivational factors driving the use and shift towards AI-based hiring software, will be reviewed. Ultimately, the goal of this research is to identify whether this shift is beneficial for recruiters or not.

The data collection will be conducted through list of questionaries’ for recruiters and hiring managers. Those questions with recruiters will shed light on the hiring practices of recruiters in terms of which modern technology they use for hiring candidates and is it results in hiring the best talent pool.

The goal of this assessment consequently is to obtain an intimate understanding of the use latest technology in hiring candidates. Equipped with this understanding, it will be outlined how they can best use their resources to focus on those aspects that are of the highest significance for the candidates.
To summarize, the literature review, it will be focused on the Information technology, Recruitment, HR, screening processes, use of AI-based software in HR processes and Risk associated with using AI-based software in recruitment. Many authors have discussed their views on above variables and this discussion will be critically analyzed. The literature section will be focused on how information technology over the years have developed and eases the routine functions. Four literature theme will be discussed. The literature section will address significant themes identified in the literature and prevalent researches in regards to effectiveness of using AI-based screening software in HR processes. This understanding can be leveraged to eliminate discrepancies in the current fulfilment of said expectations and allows reallocation and reprioritization of resources towards a more effective recruitment process.

1.5 Sub-Research Question

In order to elaborate on the content of the research project, the sub-research questions as detailed below aim to enrich and widen the scope of the primary research question by evaluating the relevance and effectiveness of hiring practices as well as the challenges these practices impose to recruiters and the improvements that can be made in order to achieve a more efficient recruitment and selection process.

- How efficient are AI-based software or modern technologies in entire HR process?
- Is AI, A new big thing for recruiters?
- Does investing in AI-based software, beneficial?
- Will adopting to AI technologies in recruitment will result in loss of jobs of recruitment professionals?
1.6 Dissertation Organization and Structure

This research is divided into seven chapters as detailed below:

Chapter 1: Introduction

The first chapter provides an overview and background information of the research topic touching the main goal of the research and its objectives. It also explains the research question Page and sub-questions, which constitute the basis for the research and guide the gathering of primary data. Furthermore, this section presents the suitability of the researcher and motivates his interest in the subject, while acknowledging the scope and limitations of the research.

Chapter 2: Literature Review

This section presents valuable and relevant themes including recruitment and selection, AI-based software, challenges and also review studies regarding motivation using AI-based software.

Chapter 3: Research Methodology

The purpose of this section is to demonstrate and discuss the existing research methods according to the Research Onion Diagram Model (Saunders et al., 2012) focusing on the research methodology choices selected for the best conduction of this particular research. A detailed analysis of the methodology research choices will touch the optimal research philosophy, approach, and strategic options in other to gather relevant primary and secondary data to proceed with data analysis.

Chapter 4: Implementations, Results and Discussions

The aim of this chapter is to analyze and discuss the gathering of primary data. It presents an in-depth analysis of the results, which supports the researcher in finding relevant and valid content in order to draw well-grounded conclusions and recommendations regarding effective recruitment and selection processes.

Chapter 5: Conclusion and Recommendations

This section attempts to summarize the main findings of this research study, touching its implications and additions for the field of study by drawing relevant and valid conclusions including recommendations for recruiters.
CHAPTER 2. LITERATURE REVIEW

2.1 Literature Introduction

The purpose of this chapter is to demonstrate the strategic recruitment and selection process and the importance this in relation to meeting an organization's objectives. The literature review defines and links the different themes within the dissertation topic. Relevant theories and concepts associated with human resource management software, Information technology, recruitment, selection and AI will be portrayed in this chapter. The literature review demonstrates an analysis of literature that has already been discussed in relation to this study. The main ideas associated with the topic are summarized and discussed to demonstrate the different views and opinions from a variety of literature. Various authors, researchers have stated their views on AI and its usefulness in recruitment and selection. Some of the authors have also discussed the negative impact of AI on recruitment. Thus, every discussion will be highlighted and relevant theory will be discussed. The researcher have finalized 4 themes and they are:

- Theme One - Information Technology and Recruitment
- Theme Two – Strategic Recruitment Processes
- Theme Three – Artificial Intelligence and Recruitment
- Theme Four – Risk of using Artificial Intelligence in Recruitment
2.2 Theme One - Information Technology and Recruitment

Recruitment and selection is an important and ongoing event in most companies. “Recruitment is the process of attracting and encouraging potential employees to apply for a position, while selection is the process of making fair and relevant assessments of the strengths and weaknesses of applicants with the intention to hire them” (Sutherland and Wöcke, 2011, p. 23). Recruitment and selection are directly linked to company’s growth in the market. Hiring best-fit from the talent pool is often a task for many organization worldwide. Finn and Dale (2003) discussed, as the point of entry for employees, the recruitment process plays a vital role in enhancing organizational survival and success in the extremely competitive and turbulent business ecosystem. Organizations often have vested interest in the hiring activities of other organizations. In accordance to this, Ripley and Ripley (1994, in Heraty & Morley, 1998, p.663) noted that the most crucial structural challenge at organizational level today is the recruitment of the best-qualified individuals while still meeting regular job requirements. It is of great importance to be aware of the decisions made at the early stages of hiring as this will impact on the overall strategic long-term vision of the organization (Henderson, 2011, p.84).

As voiced by Aaker (1989, in Sangeetha, 2010, p.94), recruitment and selections processes are key to how businesses perceive their human resources, which is very crucial in maintaining competitive advantage over competitors. In order to attain competitive advantage, each step of the recruitment and selection process should be carefully considered as bad decisions in recruitment can lead to negative effects for the entire organization. Carter (2015) argues that a misfit employee will consume time, impact team morale and can harm customer relations as well as organizational culture. Having outlined the importance of recruitment and selection, following section will be focusing on relation of Information technology and recruitment.

Organizations uses formal methods in order to select individuals. Traditionally, company’s depended on fairly low-tech methods, including newspaper advertisements, brochures and employee referrals, to locale and attract qualified candidates. Lately, the recruitment process has been undergoing various changes as a result of information technology (IT). As a result many companies uses both ways as in posting vacancies in newspapers and their detailed description on their website. For instance, many organizations uses IT systems that accept resumes via e-mail and online form submission mechanism. An optical character Recognition (OCR) then converts the scanned material into basic format (ASCII), upon which the systems artificial intelligence reads the text and extracts key data such as name, skills, technology worked on, and experience. This information is then kept in a structured format in a database.
The system then compares every vacancy in the organization and notes any/all matches. If no match occurs, the information is kept in the system until an appropriate opening occurs (Singh and Finn, 2003).

Much of the discussion on the effects of IT on an organization human resource function has focused on two key issues, viz., how it affects the nature of specific jobs, and its effects on the level of employment. As Scott Morton (1991, p. 8) argues, "information technology has important general purpose power to manipulate symbols used in all classes of work, and therefore, as an 'information engine,' it can do for business what the steam engine did during Industrial Revolution. It goes beyond this, however, as a technology that permits one to manipulate models of reality, to step back one pace from physical reality. This a core functionality of Information Technology.

![Figure 1 - Impact of Technology on Recruitment](Source: https://focus.kornferry.com)

A review of literature highlights that, effect of IT in recruitment has fundamental impacts on aspects of an organization’s recruitment function. As discussed by Singh, Parbudyal, Finn and Dale (2003) in their famous article, 'The Effects of Information Technology on Recruitment', IT has impact on all level of people in an organization, it affects people due to changing job needs and number of people applying to it. Impact on processes; the effective application may involve adaptation of new procedures and processes. In fact, this might be argued to be the intent towards use of IT in recruitment. New processes are needed to reduce labor costs, improve efficiency, transactions and provide better service to stakeholders. New procedures and Recruitment costs; for many recruiters, web-based pre-screening can help assessing potential best-fit for their job profile. This relatively new process and inexpensive than hiring a full-time
HR-consultant. Advertising costs are also much lower on the internet as compared to traditional methods. Speed, Efficiency and Just-in-time Recruitment; One of the primary ways in which IT is influencing recruitment is by handling big number of applications of candidates and also handling big number job openings. The internet is available 24-hours, thus making possible to post a job application and apply for it at in any instance.

The ultimate effect of these changes in processes is that HR function are becoming more responsive to stakeholders, moving away from position of acquiring power through its access and ownership of employee data. Snell et al. (1995) stated that when as managers and HR’s gets access to databases, focus gets shifted towards customer service, rather just owning employee data. As these databases are centrally available, HR’s start sharing it across organization, thus making the foundation and structure of organizations strong rather than its storage and pseudo-ownership.

Thus introduction of Information Technology to recruitment have brought HR teams to coordinate with each other and work synchronously. Furthermore, the development of computer software specifically designed to work collaboratively are fostering team-work in and out of organizations.
2.3 Theme Two – Strategic Recruitment Processes

According to Breaugh and James A. (2008), technological advances in recruitment processes have added automation to candidate sourcing with recruitment marketing and candidate interviewing with video assessments. In today’s competitive candidate-driven talent market, top talent pool only remains in the market for 10 days on an average. And every organization wants to attract the best talent from the job market. In this, literature theme, focus will be on various recruitment process criteria of selecting a candidate, how organizations develop strategies to hire talent, Strategic integration, Hiring plan, etc. This section will also be focused on how these processes have evolved over the years.

2.3.1 Recruitment and Selection Criteria

Having ascertained a lack of studies investigating recruitment and selection, following section will be focusing on the studies that consider recruitment and selection. Among these, many studies focus on the ‘criteria’ as main parameter, a successful applicant has to fulfill. Accordingly, the most important criterion for recruiters is an applicant’s skillset. Campero (2015) conducted high-level interviews with tech recruiters where they emphasized that finding talented candidates is “about the skills, not about the schools”. Assessing candidates’ skills is fairly easy in the IT industry; in fact, most companies perform “coding assessments” or other skills tests during the screening process. However, Abraham et al. (2015) argues that finding a ‘best-fit’ is the key aspect of recruitment and selection in organizations.

The researchers point out that there are is no specific study on the concept of ‘fit’ in recruitment and selection. However, they refer to person-organization fit (P-O) and person-job (P-J) as essential components to take into consideration in the hiring process. P-O fit is characterized by the compatibility or alignment between the characteristics of the person and the organization or environment. P-O fit is beneficial to any organization as once the company’s values and mission correlate with the employees’ principles, the alignment between them is more likely to materialize into a higher job satisfaction, organizational commitment and consequently, more productivity.

Organizational culture-fit is another prospect that needs to be considered during the recruitment process. Organizational culture is often characterized in terms of shared norms, beliefs and values. As a subdivision of organizational culture, ethical culture can be considered as resulting from the coaction among the formal (e.g., training efforts, codes of ethics) and informal (e.g., peer and leadership behavior, norms concerning ethics) systems intended to promote the ethical behavior of employees (Treviño et al. 1998). Subsequently, it is of great importance to recruit and select applicants that maximize person-organization fit, as they will contribute to building the organizational culture as well as immerse themselves in it. In
other words, employees and their company’s culture bilaterally influence each other values. As further evidence, Onnekikami (2016) additionally showed the importance of the right candidate not only possessing the necessary knowledge, skills and abilities, but also fitting within the company’s cultural structure.

2.3.2 Strategic Integration
Millmore (2003, p.90) argues that in order for recruitment and selection to be recognized as strategic, it must portray three separate identities. These include strategic integration, long-term organizational focus, and a method for judging strategic demands into a suitable recruitment and selection design. Strategic integration is viewed as a key feature in human resource strategic management. In the strategic planning it is important to match resources to a developing and constantly changing work environment. In addition to this, Sparrow and Hiltrop (1994, in Millmore, 2003, p.90) demonstrate how important the recruitment and selection process is in an organization, and that this process aligns the performance of employees with the corporate strategy. Strategic integration aligns the business strategies with the constantly changing business environment. Monks (1993, in Vernon and Brewster, 2013, p.1113) suggests that those who have been experienced in human resources often voices to encourage a more strategic approach. Therefore, human resource management plays a key role in the formation of strategic integration (Millmore, 2003, p.87). The integration of recruitment and selection strategic integration is shown below. It is important to note that recruitment and selection in HRM plays a significant role in an organization as it aligns the workforce to the organizations objectives’.

2.3.3 Selection methods and HR planning
Organizations need to choose selection methods that bests suits the job. Giving the type of job, these methods should be consistent. Some of these methods may include, application forms, interviews, video assessments, assessment centers and formal tests (Chanda, Bansal and Chanda, 2010, p.4). According to Huselid (1994, in Siddique, 2004, p. 220) a well-structured HR implementation plan minimizes employee turnover as well as create a significant contribution to financial performance. Accurate HR planning is the main feature of converting business strategies into specific HRM policies and practices, in particular with recruitment and selection policies and practices (Hussey 1999, Breauh and Starke, 2000, Anderson, et al., 2000 in, Chanda, Bansal and Chanda, 2010, p.4). Drucker (2002, in Siddique, 2004, p.220) suggests that the competitive nature of today’s organization is due to the fact that they have strong human resources and innovative candidate management practices. It is important to take into consideration here that organizations that implement their human resource system with the business strategy will succeed in the long term. It is important to align the strategic recruitment and selection process with the organizations
objectives’ and for this to be achieved, an efficient and dedicated HR team and policy is needed. The main
goal for HRM planning is to get the right number of people with the right knowledge, skills and
abilities, in the right job role at the right time in a timely and costly effective manner (Hussey 1999,

2.3.4 Candidate Screening Process and Challenges
Screening is the process of determining whether a candidate is qualified for the posted role based on his
or her education, experience, and other information captured on their resume. Screening is the most
preliminary in the entire recruitment process and is very crucial as candidates are only forwarded to next
interview rounds only if they pass screening round. A failure at this stage, leads to rejection of candidate
at very first stage itself. That is why it is so essential to study about the screening of candidates (Brehmer,
Lilly and Tippins, 2013). Screening process involves a three-step process based on the role’s minimum and
preferred qualifications and requirements. Both types of qualifications should be related to on-the-job
performance and are ideally captured in the job description posted by the recruiters.

As discovered by Furtmueller, C. Wilderom, Celeste Tate and Mary (2011), recruiters face various
challenges during candidate screening rounds. Major challenges faced are Volume of application received
and Quality of hired candidate. The number of resumes received is one of the biggest factors that
increases time to fill. The usual solution for the volume problem is using an Applicant Tracking System
(ATS). An ATS is a must-have software for recruitment and talent acquisition leaders, because it centralizes
all the resumes received for each role. An ATS usually allows for some measure of automating resume
screening through keyword matches or knockout questions. However, an ATS has some well-known
weaknesses. For example, an ATS can screen in a candidate as a false positive based on keyword stuffing
or screen out a candidate as a false negative because he or she doesn’t meet the keyword filters but has
strong qualifications otherwise. While an ATS may be effective for reducing resume volume, traditional
ATS software isn’t designed to measure quality of hire. Because an ATS doesn’t have a way to teach which
candidates who went on to become successful and unsuccessful employees, it can’t improve its screening
function.

From the above literature theme, researcher tries to highlight the importance of how hiring is strategically
important in full-filling organizations goals. The literature discusses will be beneficial in later stages as it
will help to compare and contrast the findings of this research.
2.4 Theme three - Artificial Intelligence and Recruitment

Artificial Intelligence (AI) is an emerging technology which is gaining more and more attention every passing year. Intelligent and self-learning programs are used in software development and many other areas of IT (Raub, 2018). Of course, AI is still far from human cognitive abilities, but very basic functions, like learning, making difficult decisions, and thinking; can be performed by advanced machines. AI-based software is the most flexible solution for various departments of an organization. Artificial Intelligence gives more opportunities for automation of processes that don’t require a high level of creativity and so can be performed by a machines based on AI. Artificial intelligence (AI) technology is developing rapidly and is quickly becoming a part of daily life. AI can be adopted to help people in the working in organizations. For example, AI can be used to assist interviewers during a primarily interview round. Applying AI in interviews is advantageous because an AI interviewer does not involve its emotions when treating interviewees because of their personal, mental, or physical traits or other external conditions, unlike human interviewers. This literature theme will be focusing on artificial intelligence and recruitment and will throw lights on studies and research that have been carried on it so far.

2.4.1 Introduction of Artificial Intelligence to Recruitment

During face-to-face interviews and assessments, interviewers tend to make unscientific or irrational decisions because of their particular views and personal emotions; as a result, the opportunity to hire best-fit talent can be missed. Because hiring an excellent candidate is critical for the success of an organization, all enterprises strive to identify and hire people with considerable talent and work potential. Additionally, when job applicants contact any human resources (HR) department or private recruiters, they can generally recognize whether the company is concerned about fairly treating each applicant. The perceived level of fairness can create an impression, good or bad, of the organization in the mind of a candidate. Such background of an organization can lead to acceptance or rejection of an offer of a second-round interview, and thus affect the opportunity for the company to recruit and hire top candidates.

As discussed by Gans, Joshua Goldfarb, Avi and Agarwal, in their book “PREDICTIVE MACHINES: The simple economics of Artificial Intelligence”, the automation of processes becomes possible due to AI’s ability to analyze big data and quickly estimate available options. AI technologies became widely used not only in IT but also in marketing, manufacturing, Recruitment, etc. There’s no surprise that many organization have started using AI solutions in recruitment, trying to automate the recruiting process and to discover new ways of hiring talent. AI might prove to be the most important recruitment technology solutions. The use of artificial intelligence for handling the recruitment process brings about cost-
effectiveness in addition to qualitative advantages for both clients and candidates. (Upadhyay and Khandelwal, 2018)

Figure 2 - AI in Recruitment
(Source: www.123rf.com (Stock))

AI technologies look promising because it allows recruiter agencies or HR departments of organization to complete unified profiles from massive unstructured data sets, matching skill sets required for a certain job role with the candidates’ job profiles. (Leong, 2018). Foremost, it gives us opportunity to automate low-level tasks. Providing HR’s with more detailed information, it immediately reduces operational costs. Modern recruitment screening software has many benefits besides just automating administrative workload. There is also more specialized software which allows recruiters to see how a candidate demonstrates his or her skills in practice. For example, Filtered is used in tech talent recruiting to test candidates by using multiple coding challenges that are generated automatically by automated AI screening software. Video interviews, extracting useful information from responses given by candidates; are some tasks which are automated with help of AI. As explained by Raviprolu, Anjana (2017), following are benefits of AI in HR:
**Benefit 1: The quality of hiring increases**

HR’s needs to select the right people from a big pool of applicants. Artificial Intelligence, the whole process can be divided into several hiring rounds. Recruiters can collect more data on each candidate and so evaluate candidates more effectively.

**Benefit 2: Better integration of analytics**

HR managers get an opportunity to select candidates based on their requirements and find a right position where abilities of a certain candidate are most needed. This new approach not only increases the productivity of business but also motivates candidates to improve their skills. In addition, AI-based screening software demonstrates a higher level of efficiency compared to human recruiters.

**Benefit 3: Automation saves time**

Time is valuable for every organization, and the recruiting industry is no exception. Artificial Intelligence provides many solutions for estimating the candidates’ skills. AI-based software only needs fraction of seconds to analyses big amounts of data of candidates and provide understandable results that can be considered by HR’s. Saving time, AI solutions also save money and resources.

**Benefit 4: Unbiased decisions**

Human interference always implies a certain amount of unconscious or conscious biasing. Biased decisions are a common problem for all sorts of organizations, and AI solutions are able to minimize this element. Companies get a great opportunity to hire only the best candidates based on their real potential and fair insights, as all the decisions are made taking into candidate’s data and resume only.

2.4.2 Adoption of Artificial Intelligence in Recruitment Process

The adoption of artificial intelligence in the workplace is increasing, but it is fairly doubted whether it will constitute an obstacle/threat to current jobs or the answer to the present productivity issue (Hogg, 2019). If the possible candidates gain intrinsic benefits from the adoption of artificial intelligence in the recruitment process, they tend to apply for the job which are most relevant to their profile and liking (van Esch et al., 2019). On the other hand, organizations uses the automation to reinforce workforce planning and recruitment processes. Technology may boost the success of talent acquisition operation. (Gupta et al., 2018). Kaplan and Haenlein (2019) discussed the application of analytical artificial intelligence can be in human resource management to assist with the assessment of CV’s and selection of candidates as cutting-edge application tracking systems.
A research carried by Rodney (et al., 2019) voiced for promotion and adoption of artificial intelligence as a main constituent in the e-recruitment process. Despite the fact that its present suitability is in the preliminary stage of the applicant selection process, job candidate anxiety as regards the employment of artificial intelligence is inferior to an applicant’s position in relation to the hiring company. Artificial intelligence recruitment can be a most effective component of the organization’s complete promotion and strategic human resource talent management processes (van Esch et al., 2019). Greater Smart Technology, Artificial Intelligence, Robotics, and Algorithms (STARA) cognizance is adversely associated with organizational commitment and career contentment, and favorably connected with turnover attitudes, pessimism, and despondency (Brougham and Haar, 2018). Artificial intelligence can simplify labor output by handling diminished value-added or assisting tasks (Andrei et al., 2016; Ionescu et al., 2013; Lăzăroiu et al., 2017; Popescu et al., 2017), therefore making possible for workers to address high value work, and can further companies in increasing their monetary utilization rates, as found by Plastino and Purdy (2018). Further, they added, activated by a convergence of a tremendous increase in information, scaling-up computational power at diminishing expenses and advancements in technology, artificial intelligence is being embraced as an output enhancer and multiplier. Throughout the recruitment process, companies can gather supplementary data e.g. age, health condition, body image, race, gender, sexual orientation, and economic class, employing them to systematize job candidates to a greater extent and to differentiate where feasible as regards with job screening. Extraction of additional information also leads to ethical and privacy issues, (van Esch et al., 2019).

Several researchers studied and proposed models (Jantan et al., 2010; Masum et al., 2018; Strohmeier & Piazza, 2015; Tai & Hsu, 2006; Daramola et al., 2010; Ramar & Sivaram, 2010; Chien & Chen, 2008) that have incorporated intelligent decision support systems with recruitment functions, offering a set of possible solutions to improve the process efficiency and job finding. One of the mostly used AI techniques in recruitment is the Knowledge-based search engine (Strohmeier & Piazza, 2015) which is a system designed to search content within the internet. Search engines recognize the meaning of the search content and perform a web-based search for fitting job-seekers profile based on semantic annotation of job posting and profiles (Mochol, Jentzsch & Wache, 2007). Employers have to define keywords or a “reasoner” that describe the unique job descriptions such as job title, qualification, experience, expertise, etc. The knowledge-based search engine employs a predefined algorithm which based on ontology-driven information extraction within the system to improve the search results for matching candidates (Çelik, 2016). For example, “The recourse on a domain ontology allows the search engine to recognize that the
vacant position sales director is semantically similar with a searched position marketing manager among others” (Strohmeier & Piazza, 2015).

Another system is, Expert systems, which are one of the earliest and simplest branches of AI technologies and have been widely used in business decision-making and HRIS. Expert systems are typically built in domains about human expertise with many rules flooded to be processed by humans (Lucci & Kopec, 2016). It produces comprehensive and effective results. However, expert systems recommend solutions and actions rather than generating opinions or learning. Studies carried out by, Mehrabad & Brojeny, 2007; Daramola et al., (2010), have been focused on integrating expert systems into the human resources recruitment and selection process. Another AI technique which is commonly used in recruitment is Data Mining. Simoudis (1996) definition of data mining is “extracting valid, previously unknown, comprehensible, and actionable information from large databases through an automatic or semi-automatic device and using it to make crucial business decisions”. Data mining applications are not confined to excerpting information from an enormous database; they also provide an opportunity to analyses and predict potential significant implicit and previously unknown results. Data mining has four functions: association, clustering, classification and prediction (Kantardzic, 2011). Chien & Chen (2008) proposed a layout for the data mining system based on decision tree technique which is often used for classification and prediction when screening an enormous amount of candidate resumes from databases.

The proposed system is used with demographics data such as age, gender, marital status, education, and experience to predict applicant’s future performance and retention. Strohmeier & Piazza (2015) argued that information extraction based on data mining appears to be an effective technique which could be used for Résumé data acquisition during the initial screening process. In addition, they suggested an intelligent text processing technique using text mining for sentiment analysis; the test automatically extracts sentiments and opinions within an unstructured text and classify them into “positive sentiments” and “negative sentiments”. Such a technique could be used in examining an applicant by analyzing their sentiments within a textual context. Chien & Chen (2007) conducted an empirical study to test an intelligent system based on data mining in order to recruit and retain high potential talents. Based on 29 rules, the proposed approach aimed to predict work behavior such as performance and resignation to improve the personnel’s selection process and recruit the right candidates for specific job functions. Petrovic Lazarevic (2001), Dursun & Karsak (2010), Tai & Hsu (2006) presented a data mining systems based on fuzzy logic to support the decision making during applicant screening and selection process by minimizing the subjective judgment associated with traditional methods.
Another AI techniques is based contemporary AI-based decision support systems focused on Artificial Neural Network (ANN) which is considered much effective in reasoning and learning capabilities. ANN relies on machine learning and it aims to capture the parallel and distributed structure of the human nervous system as an attempt to simulate human learning capability (Lucci & Kopec, 2016). Huang et al. (2004) integrated the ANN technique into the human resources selection system by testing a model meant to evaluate managerial talent; they used neural network learning to determine the score of each candidate. Furthermore, Huang et al. (2006) used artificial neural networks to discover implicit knowledge and presented results that were useful in predicting candidate’s future performance and in supporting their allocation to suitable positions and projects.

2.5 Theme Four – Risk of using Artificial Intelligence in Recruitment

There has been an emerging trend of utilizing Artificial Intelligence (AI) technologies within the business environment throughout the last two decades. This literature theme will be focusing on the position of the Human Resources recruitment and selection, an aspect of HR management, regarding incorporating Artificial Intelligence solutions. This section will sheds light on following questions: To what extent will humans use AI to hire humans? To what extent and how will AI affect recruiters’ jobs? What are organizations’ and HR managers’ roles in this transformation of HR systems? To this end, a set of literature and proposed models as well as studies of most prominently used temporary artificial intelligence solutions for the acquisition of Human resources will be reviewed to analyze and understand the previous contribution. It has been discussed previously that AI provides promising solutions for recruiters and organizations to optimize talent acquisition by taking over time-consuming repetitive tasks such as sourcing and screening applicants, to improve the quality of the hiring process and neutralize human biases. Augmented intelligence will be used widely and increasingly to produce better and more effective results; as a result, it has been speculated that routine administrative jobs will be replaced by smart AI systems and will gradually disappear.

It is important for recruiters, HR executives HR managers and all those who make recruitment decisions to understand the specifics involved with recruitment decisions. Though AI looks – technology of future, it comes with some risks too. There are some limitations and certain risks that can affect the quality of selection and screening process. As discovered by, Arntz, Melanie Gregory, Terry Zierah and Ulrich (2017), in their journal related to risk of using automation, some major threats that comes with using AI into recruitment are, Data collection about candidates, giving fair and equal opportunities to all candidates, providing feedback on selection, etc. These are some possible risk involved with using AI-based software.
Every organization needs to think before adopting AI technology and tailor as per there need and specification.

It is very much clear that AI is playing a crucial role in optimizing recruitment processes. AI tools decrease the burden of heavy and time-consuming repetitive tasks such as sourcing, screening applicants and other administrative tasks. Such benefits will contribute significantly in reducing the hiring cost and improving the quality of recruitment as well. In addition, AI will add deeper level of transparency in the hiring process by eliminating human biases and improved job seeker perceptions about the employers who will enhance employers’ image and brand. For all those possible benefits, there is no doubt that artificial intelligence taking part in recruitment and selection will gradually increase in near future. Huang & Rust (2018) in their study “Artificial Intelligence in Service” classified artificial intelligence primarily into four classes: mechanical, analytical, intuitive and empathetic. The study conducted by Huang and Rust (2018), claimed that mechanical and analytical intelligences have widely replaced jobs at task level for a while, their importance is decreasing in favor of advance intuitive and empathetic intelligences. Furthermore, while Mechanical and analytical intelligences are more task oriented, intuitive and empathetic will rather intervene at the job level.

Intuitive and empathetic intelligences are developing rapidly in recent years which pose a threat to replace a variety of problem-solving managerial and high-level jobs. Self-driven cars or customer service Chabot’s are few examples of such intuitive artificial intelligence, while ‘Replika’ the online personal artificial intelligence friend is an example of empathetic intelligence application in real-world. Chui et al. (2015) carried a research and expected, that even highly-paid jobs such as financial managers, physicians, and senior executives are possibly vulnerable to be replaced by AI in coming future. Similar to other jobs, recruitment will not be safe in the Artificial Intelligence era. It is believed that the utilization of AI technologies in the HR recruitment and selection process will tend to increase at intuitive and empathetic levels.

Intuitive solutions and Chabot’s are used to interview and screen applicant’s skills, hence, social, emotional, communicative, and highly interactive robots with picture and sound recognition technology will be used to conduct a face-to-face interview with candidates in the near future. Khosla et al. (2016) conducted a study to check the use of social robot to interview applicants by assessing subtle variations in their facial expressions and sounds. The robot evaluated applicants’ emotional and cognitive behavior based on verbal and non-verbal variables and the results were benchmarked according to organizations expectations. Will AI takeover? Probably AI will not fully replace a recruiter’s job. It goes without saying
that AI will be widely and increasingly used with better and more effective results. More innovative human-machine integration at the intuitive and empathetic intelligence level will evolve; however, the human touch will always be needed at all levels. Increasing dependency on AI technologies will dramatically affect talent acquisition and management jobs within HRM domains. To conclude, Time-consuming administrative duties such as sourcing, screening and interviewing applicants will be handed-over to AI technologies thus giving recruiters and HR manager more space to focus on strategic affairs.

2.6 Literature Conclusion
The literature review explains the different literature themes associated with the topic of the dissertation. The four themes in this chapter are incorporated into the dissertation topic. It is evident that rapidly emerging trend of utilizing AI technologies in the business environment in the last two decades the HR recruitment and selection strategy of the HR management will gradually incorporate more usage of AI solutions into its process. It is evident from various sources that, AI provides interesting solutions for recruiters and organizations to optimize talent acquisition by taking over time consuming repetitive tasks such as sourcing and screening applicants, to improve the quality of the hiring process, eliminate human bias and ameliorate job seekers’ perceptions by improved communications. However, job-seekers’ reactions may be influenced by cultural, social, legislative factors or HRM practice differences. AI application in HR recruitment will continue to grow at a higher level of intelligence which will significantly affect recruitment and selection jobs as well as core competencies. Recent trends indicate that administrative routine jobs will be replaced by smart AI technologies and will gradually disappear enabling recruiters and HR managers to focus more on strategic functions. Therefore proactive planning is needed at organizational levels for incorporating AI solutions with their goals. In future, AI solutions will facilitate talents’ access, which will increase competitiveness and place more pressure on organization and HR managers to adapt and incorporate AI into their recruitment strategies.
CHAPTER 3. METHODOLOGY

3.1 Introduction

In the research methodology section, appropriate research techniques, design and approach are selected based on the requirements of the research. In the current section, description and justification of chosen philosophy, design and approach will be presented. Selected techniques will be directly related to the Artificial Intelligence, Recruitment and selection process. In addition, the relevant data collection and analysis method will also be described in this chapter, which will help in collecting appropriate data regarding research topic. Finally, the sample size will be selected for this research, and the ethical consideration will be mentioned.

3.2 Research Onion

![Figure 3 - Research Onion](Source: Bailly and Comino 2017)
In the diagram above; the research onion, it can be observed that the first layer is the research philosophy, where the researcher focuses on the core objectives of the research. At the same instance, the main findings of the research have also been discussed in this portion. On the other side, it can be noted that the research onion is also very important chapter which is pillared on the three philosophies. These philosophies are known as the ontology, Epistemology and the Axiology. The main task of the researchers while studying over the research onion have been focused on selecting the set of philosophy for carrying over the specific research. There are also some of the research approaches, included within the research onion, which is known as Deductive approach and the Inductive Approach. Thus, it can be understood that there are six layers within the research onion, which includes the philosophical stances, diverse range of approaches, different groups of strategies, level of choices, time horizons and many techniques and the procedures. The time horizons section depicts cross sectional and longitudinal time horizons and in case of choice, there are mono methods, mixed methods and the multi-methods.

3.3 Research Philosophy

![Figure 4 - Research philosophy](Source: Ulmer 2018)
With respect to carry out research, philosophy is one of the fundamental aspects that influence in shaping the present research. Total three research philosophies such as realism, interpretivism and positivism can be used in any given research. Bailly and Comino (2017), suggested that realism depends on the realistic ideas presented by expertise. After collecting data from expertise in the market, the researcher can identify the aspects of the research and then develop a strategy for achieving it. However, interpretivism focuses on identifying the elements of study and analyses it for developing a conclusive statement. Finally, positivism collects data based on factual knowledge and which helps to analyse the data for achieving the expected result.

In the current study, positivism research philosophy has been selected for understanding the usefulness of modern technologies like Artificial Intelligence in recruitment. With the assistance of positivism, the researcher can collect appropriate factual data about modern technologies and Recruitment. Therefore, the usefulness in using Artificial Intelligence in recruitment process can be understood. On contrast, both interpretivism and realism philosophies cannot help the researcher in collecting factual data regarding Artificial Intelligence and Recruitment; as both philosophies do not relate to real facts, the research outcome cannot be achieved through interpretivism and realism (Ulmer 2018). Data analysis needs data that is based on factual results. Both; interpretivism and realism, cannot provide any such evidence. So it will be very difficult for researcher to conclude about recruitment and artificial intelligence. Positivism is recommended for scientific experiments in physical and natural science. The intention is to establish the relationship between cause and effect. (Saunders and Lewis, 2012, p.104). This type of research requires a high level of objectivity and the data will be collected through experiments and observation. Thus, positivism is the ideal option to carry out this particular research.
3.4 Research design

![Research Design Diagram]

Figure 5 - Research design
(Source: McCusker and Gunaydin 2015)

The research design can be divided into three types such as Explanatory, Exploratory and Descriptive. Explanatory design is related to a cause and effect analysis process in which the researcher can analyse the impact of the dependent variable and independent variable. However, according to Fink (2019), in order to explore the research topic, the exploratory design is used. Finally, the descriptive design focuses on analysing the critical variables in research, which can provide an expected outcome. In order to achieve the expected research outcome, the researcher has selected descriptive research design strategy.

With the help of descriptive research design, the researcher can identify the critical element related to Artificial Intelligence and recruitment. The descriptive design structure allows the researcher in casting light on the current issues of recruitment; thus, a conclusive solution can be provided to the organization planning to adopt artificial intelligence in their hiring process. Moreover, the critical variables of the research can be discussed by the researcher in order to adapt innovative ideas to develop strategies to adopt Artificial Intelligence in their hiring process. On the other hand, it has been understood that in both exploratory and explanatory research design, cannot identify the key variable in the research. McCusker and Gunaydin (2015), suggested that, exploratory research only evaluates the research topic and does not provide a conclusive statement, which won’t be an ideal for this research. Similarly, the explanatory design is also irrelevant for this study as there is no requirement of cause and effective process.
3.5 Research Approach

For the corrective assessment of the lined-up tasks in due course of a research study, it is critically important to have a predetermined set of assumption and process that would further determine the authenticity of the research. As suggested by Etikan et al. (2016), the research approach is a set of predefined steps that defines the practical data collection framework of a study, thereby making the study more realistic and authentic. Apart from proving real term assumption for the data collection process, the research approach also lays the base for the analysis and interpretation of the accumulated data. As the research approach supports the data collection, analysis and interpretation, it is based explicitly on the nature of the research problem being addressed that is analyzed from the selection of data collection sources.

As affirmed by Sharma (2017), there are three types of research approaches that are mainly implemented in a research study that includes Inductive, abdicative and deductive methods. The Deductive research approach checks the validity of the assumptions that are already formulated in the prominent section of the research study. In the deductive approach the theory comes first and after the theory has been established, a strategy is selected in order to test the theory. Abdicative research approach deals with the estimation of unknown facts about the chosen topic. Furthermore, the Abdicative approach is also responsible for the further derivation of puzzles that helps in the identification of themes and patterns, thus, assisting in the appropriate placement of the identified elements in the conceptual framework. However, the Inductive approach is related in formulation and derivation new theories and unknown general facts about the chosen topic.
The current study has implemented the Deductive research approach is the valid derivation of hypotheses to check the viability of a particular statement systematically. A deductive approach involves testing a theory, “and the gathering of data in order to test the hypothesis which was previously formulated. A deductive approach have been selected for this dissertation as the research began by first formulating the hypothesis that Artificial Intelligence is playing a vital role in modern-day recruitment process at an organizational level. The hypothesis will then be tested by the gathering of data relevant to the research in order to prove whether the theory is correct. Furthermore, the prominent theoretical aspects of the study would help in proving data in abundance for the active synthesis and analysis.

3.6 Research Strategy and Data Collection Technique

In order to evaluate the authenticity of a particular research study, it is equally important to sequence the lined up task in an effective manner that would further help in the systematic attainment of the aforesaid goals and objectives of the researcher which the study intends to find out. As suggested by Thomas et al. (2015), research strategy is the step-by-step manual of the sequenced tasks that are equally significant in completing the research study within the stipulated time period. Also, the research strategy is a plan of action that provides an additional direction to produce pragmatic facts and conclusions. Moreover, the proper sequencing of further tasks in the research study helps in avoiding unwanted delays in due course of the study.

Additionally, the research strategy also helps in the further identification of the gaps in the existing pieces of information, thereby providing a solid edge to the research. As affirmed by Venable et al. (2016), the evaluation of further gaps in the existing pieces of literature helps in analysis the prominent risk factors in advances thereby, providing a distinctive identity to the current study.

The data collection process is further divided into two broad categories of the primary and the secondary data collection process. Moreover, the selection of the data collection process depends explicitly on the nature of the study. The secondary data collection process realizes all the secondary sources of data that includes books, newspaper, magazines, journals, online portals, and so on. Due the excessive presence of data in a variety of resources, one of the biggest problem that the research had to face in due course of the study was, selecting the appropriate set of secondary data sources for the further analysis of facts. Moreover, the primary data is the broad summarization of the various first-hand sources of information. The primary data collection process can be further divided into the qualitative and quantitative data collection process.
The research strategy undertaken in this dissertation is following a quantitative approach. Willis argues that “most quantitative research falls into three broad categories: experimental, relationship research and survey research” (Willis, 2008, p. 174). The quantitative strategy of this dissertation will be carried through the use of survey/questionnaires. Owing to the nature of the research questions, survey/questionnaires were deemed as the most suitable choice of research strategy to undertake. “Quantitative perspectives derive from a positivist epistemology, which holds that there is an objective reality that can be expressed numerically” (Glatthorn and Joyner, 2005, p. 40). The alternative of using a quantitative strategy is using a qualitative strategy. Bond states that a qualitative strategy gathers data which “is in non-numeric form, usually focusing on people’s beliefs, values and meanings” (Bond, 2006, p. 129). A qualitative strategy is mostly focused in interviewing people. A quantitative strategy with the use of survey/questionnaires was chosen for this dissertation to collect the primary data as opposed to a qualitative strategy for a number of reasons.

Firstly, using a quantitative strategy allowed for the use of a greater sample size than in comparison to that of a qualitative strategy. “Surveys attempt to gather more information from an entire group or more usually a sample, which can then be used to make inferences, or generate policy or reveal unsuspected facts” (Swetnam, 2005, p. 33). A quantitative strategy will enable this dissertation to distribute survey/questionnaires to a large number of organizations and private recruiters in comparison to that of undertaking a qualitative approach. Google forms will be distributed amongst recruitment professionals across India and Ireland. The recruitment professionals will be contacted with use of professional networking site called as LinkedIn and messaging application called as Whatsapp.

Secondly, owing to the short time frame in which to conduct this research, gathering the information needed through survey/questionnaires was regarded as less time consuming than having to conduct individual interviews with a large number of companies. While formulating the survey/questionnaires and distributing them took four or five days, this was still less time consuming than conducting interviews. Due to the time taken to conduct interviews, it would have only been possible to conduct five to ten of them. “Interviews are very time-consuming when taking into account the length of the interview, the time taken travelling to and from the interview and transcribing the tapes or notes taken” (White, 2006, p. 29). Similarly, as this research is being carried out over the summer months, finding a time to meet with respondents to interview may have been difficult due to people going on holidays or taking time off work. Therefore, the use of survey/questionnaires allowed the respondents to complete them at their own pace, and put them under no obligation to commit a large amount of time to allow the collection research data,
as the surveys only took less than five minutes to complete. Similarly, if observation had of been used to prove the hypothesis in a specific organization by collecting primary data, it is very time consuming and would have taken longer than the designated research timeframe.

Thirdly, the use of a quantitative strategy was also chosen to be beneficial as the research involved finding out whether artificial intelligence is aiding recruitment through use of modern technologies at workplace. Companies and private recruiters, particularly those with low diversity levels, may regard this as a sensitive subject, and may not want to disclose this information, unless they are able to do so anonymously. Therefore, it is believed that using survey/questionnaires may have warranted more honest answers from companies than that of a qualitative approach.

### 3.8 Data Analysis Technique

After the collection of data, it is crucially significant to analyze the prominent trends to trace the prevalent patterns in the organization related to the use of artificial intelligence in recruitment process. As suggested by McCusker and Gunaydin (2015), the analysis of data helps in tracing the prevalent practices in the prevailing scenarios. Data analysis is the interpretation, cleansing, transformation and modelling of data to discover the realistic and transparent information that would further help in drawing reliant conclusions. The analysis of data has multiple facets and approaches that are specifically targeted in the effective decision-making process.

The researcher has effectively used a variety of deemed data analysis techniques that are applied to conclude reliant inferences from the accumulated first-hand sources of data. Since in the present study, the researcher has relied on farming the responses of the samples that are selected based on chosen sampling techniques in the format of Likert’s scale. The selection of Likert’s scale is advantageous for the study as it takes into consideration the frequency analysis to evaluate the various first-hand sources of information. With the help of the open-ended questions of interviews, the current study has been beneficial in gathering personal viewpoints of respondents. Moreover, one of the primary reasons for choosing the frequency analysis technique is to assess the various first-hand sources of information and derive data towards a universal context. The frequency analysis is mainly confined in quantifying the data entirely; there are prominently fewer chances for biased interpretation thus, helping in answering the framed research question and satisfying the predetermined objectives and aims of the particular study.

With the use of survey/questionnaires as the means of collecting the desired data, graphs and charts will be used in order to analyze the data received. Using Google analytics software which allows the
information collected to be interpreted easily and survey answers to be easily noted and analyzed. It was important that the data collected was unbiased, and also that other variables which had been previously not considered earlier by researcher, are explored, as they may also impact findings and formulate new areas of research.

3.9 Sampling Technique

Sampling techniques are the wide range of procedures and practices that are used in deciding the set of samples that takes an active part in the data collection process of the study (Boddy, 2016). The prevalence of excessive bias amongst the chosen samples degrades the interpretation of results. There are a variety of sampling techniques those are; purposive sampling, convenience sampling and random sampling which are specifically targeted in analyzing the prominent trends in the chosen topic.

The current study has implemented the probability sampling of which the researcher has adopted simple random sampling method. The random sampling have been selected keeping in mind that recruitment professional must be using automation in recruitment process at certain level in there hiring. Furthermore, the survey will be conducted online, and the questionnaire for the survey will be shared online. One of the prominent reason for the selection of random sampling is to substantially reduce the errors that might have crept in the data collection process and usher the verdict and the conclusion and seek for the universal implementation.
3.10 Sample size

In order to collect appropriate data regarding recruitment process in various organizations, the appropriate sample size is needed to be selected by the researcher so that the possibility of data error reduces. In relation to this study, total of 40 recruitment professionals will be selected by the researcher. The professionals can identify the use and issues with use of automation of recruitment process within their organization and identify what challenges the companies are facing regarding this change to AI. Therefore, the potential quality of the researcher can be developed by, and the research can provide appropriate solutions in order to reduce the challenges.

3.11 Ethical consideration

![Ethical Consideration Diagram]

*Figure 8 - Ethical consideration*

(Source: Parra Escartín et al. 2017)

In order to conduct the data collection process without any difficulties, the researcher has guaranteed that the focus groups maintain accountability and transparency. Before conducting the online survey, the researcher has described the aim and objective of this research. In addition, the requirements of this research regarding AI and recruitment, have also been described to the respondents. According to Khan (2016), the researcher and focus group also assured that they did not force any respondents in joining this research. Furthermore, the collected data has not been manipulated by the researcher.
The researcher has also assured that all collected data has been stored in digital devices, which include password protection so that the third party cannot access the data. The researcher has shown equal respect to each respondent in this research and avoided discrimination for avoiding issues. Finally, it has been seen that the researcher has evaluated the collected data from the respondents so that the number of relevant data can be avoided (Parra Escartín et al. 2017).

3.12 Limitation of the study

In order to conduct this study, the following research limitations have been recognised by the researcher:

The main limitation of this research was that a low number of recruitment professional participated in the survey/questionnaire. Of the 100 Google forms sent out to professionals, only 40 replies were received. However, response rate of 20% is acceptable if the information collected is of good quality. In order to collect and analyse the data from the respondents, the research requires a high amount of time. However, this study has a particular deadline, which increased limitation in data analysis.

Secondly, respondent error is another limitation which can occur. Participants may make mistakes when filling information in the questionnaires. In order to combat this the questions provided in the questionnaires, were easy to understand and left little room for confusion.

However, another limitation which is more difficult to combat is that participants may provide biased answers. Organization, in particular those which have low knowledge about recruitment and AI, may not want to admit this fact and answer the questions in a manner which portrays them more favorably. In order to ensure that the participants provided honest answers it was pointed to them that out that as the survey results were being received anonymously, they do not have to pick answers which cast themselves or the company in a favorable light. The use of Internet survey/questionnaires is less likely to generate any many biased answered as interviews would. However, no matter how unbiased the questions asked are and how often the fact that the survey is anonymous is stressed, bias or untruthful responses may still occur and thus be a limitation.

The final limitation that has been recognised in these research issues in data verification. As data is collected from a high number of respondents, all collected data has not been verified by the researcher. Due to the issue in data verification, a possibility of irrelevant and unauthentic data can be recognised in this research.
3.13 Summary

From the above discussion, it can be summarised that the researcher has evaluated the requirement of this research and selected appropriate research techniques. In order to understand the recruitment in the era of AI, positivism research philosophy has been selected by the researcher. With the assistance of positivism, the researcher can collect appropriate factual data about AI software used in the recruitment process. On that basis, the challenges can be understood. In addition, for achieving the expected research outcome, the researcher has selected descriptive research design. Descriptive research design can identify the key element of the intended results. As the descriptive design allows the researcher in casting light on the current issues of recruitment, a conclusive solution can be provided to the organization for developing better AI-based software for recruitment.

Furthermore, the researcher implemented the Deductive research approach is the effective derivation of hypotheses to check the viability of a particular statement in a systematic manner. The research in the present study has implemented the quantitative research strategy; which will help in evaluating the usefulness of AI based software in recruitment process. Finally, the researcher has ensured that the focus group have not forced any respondents in joining this study.
CHAPTER 4. IMPLEMENTATION, RESULTS and DISCUSSIONS

4.1 Introduction

This chapter aims to analyze the relevant primary data collected from the surveys/Google forms, distributed for this research. The aim of this chapter is to simply present and illustrate the findings of the surveys descriptively without drawing general conclusions. The section is divided amongst sub-sections depending on the theme of data to be analyzed. The analysis in this chapter aims to present the main objective of the dissertation:

"Does AI-based hiring software help recruiters identify best talent pool?"

As mentioned earlier, participants were chosen so as to gain a variety of opinions and views on topics related to the research question. Each of the participants who took part in this research had given a choice to remain anonymous or to provide Email – ID and company name. The responses will help us to validate the hypothesis mentioned in earlier section. The questionnaire and responses, have been divided among groups and analysis will be carried of questions falling in same group.

4.2 Data Analysis One – Analysis of background of responders

In this first section, the questions aim is to interpret the background of responders. Question like; in which sector does your organization operate? Private recruiter or HR in an organization? Etc. such question will shadow light on the recruiters background, thus will help this study to lay foundation for discussion in later chapters. The main goal of this section is to derive a better understanding of the recruitment professional’s background and perspective towards introduction of AI to recruitment and selection aspects that will inform and guide the overall data analysis. In this section following are the questions which were asked to recruitment professionals via Google forms:

- Do you work in a private recruitment agency or HR in an organization/company?
- In which sector does your organization operate?
- Do you use modern technologies for e.g. AI-based screening software, Database management software, etc. in your Hiring process?
Recruitment professional were asked to state that whether they work in private recruiting firm or in Human resource department of an organization. This question received response from everyone who intended to fill the questionnaire form. 18 respondent out of 40, stated that they work in human resource department of an organization, which means that 45% of respondents are currently working in industry and the researcher’s aim to extract knowledge from current industry practice, might be full filled. The form had a question asking about the name of organization they work for. Not all respondent responded to this question as this question was optional, following the guidelines mentioned in methodology section, but few did. Some of top companies from whom researcher got responses are; Infosys, IBM, Accenture, Iconcept LLP, Tech Mahindra, VB Stay Ireland, etc. 37.5% respondent stated that work in private recruiting firm. Researcher got response from some of the recruiting by names; Itpre neur Pvt. Ltd., Vedanta Foundation, etc. A further one respondent (2.5%) identified themselves as not suitable with the options given and further failed to specify their area of business. This response is example of respondent error, which was spoken about in the methodology section, as another of the respondents stated that work as IT solutions but failed to state the name of the organization. From looking at the chart it can be easily noted that most of the respondents are currently working in industry and found this questionnaire meaningful and intended towards right audience. This will help researcher to properly frame the conclusion.
Within the survey/questionnaire, recruitment professionals were asked about their area of business. In which sector does your recruiting firm or organization operates. It is important to ask this question because it is necessary to evaluate that in which sector automation is used at maximum. It is more important to discover that use of AI is just not concentrated on one particular sector, rather it has applications in all sectors. 22 (55%) respondent stated that they are from Information technology sector. The second highest sector reported was, consulting with 15%. It is very interesting to see respondents
from other sector like insurance, retail, manufacturing, teaching; visualizing a sense that AI is embarking its presence in those sector as well. From viewing chart it, can be stated that the majority of the respondents surveyed are aware of technologies emerging in their particular sector.

Do you use modern technologies for e.g. AI-based screening software, Database management software, etc. in your Hiring process?

40 responses

![Pie chart showing usage of technologies](image)

After the knowing the background of respondents, the survey form asked the recruitment professional do they use modern technologies in their hiring process? This question will pave path for rest of the questionnaire form aligning it directly with the intentions of using AI in recruitment. All of the recruitment professional’s, surveyed responded to this question. Professionals were asked this question to state the use of modern technology in their hiring operations. This information gathered is also important as it demonstrates use of modern technologies in organizations in modern-day hiring. While this has been previously discussed in literature review and will be discussed in next chapter as well, it is important to note that 27 (67.5%) respondents’ uses modern technologies like Artificial Intelligence, database management software, etc. in their hiring process. This a solid proof that organizations are aware of AI technologies and already using likewise technology in their hiring process. 10 (25%) respondent stated that they do not use modern technology in hiring but further failed to state that on which technologies they rely on for hiring. 7.5% people responded by stating that they use some sort of modern technologies like Google sheets, Excel sheets, database management, etc. but not Artificial Intelligence. These
interesting numbers wherein organizations are switching towards adaptation of modern technologies in Hiring. The level to which automation is adapted depends on organization-to-organization.

4.3 Data Analysis Two: Analysis of respondents with respect to introduction of AI to Hiring Practices

In second section, the questions aim is to interpret responses with respect to introduction of AI to recruitment. Another key theme in this section is to understand whether the recruitment world is aware of introduction of AI to their field or not. The information collected in this section is important as it will pave path for deeper level of understanding towards usage of AI in hiring practices. Following are questions whose responses will be analyzed:

- Do you have in-house Human Resource Management (HRM) software or you rely on third-party software systems for Hiring?
- Are you familiar with introduction of Artificial Intelligence in Hiring practices?
- Do the software used for Hiring process in your organization is based on application of Artificial Intelligence or latest technologies?

Figure 13 - Knowing the preference of recruiter’s towards use of HRM software

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Do you have in-house Human Resource Management (HRM) software or you rely on third-party software systems for Hiring?

40 responses

- In-house Software: 37.5%
- Third-Party Software: 62.5%
This question was asked to the recruitment professionals in relation to extract information related to hiring use of Human resource Management (HRM) software. Many companies rely on in-house or third party software system for hiring. Developing in-house software for hiring involves lot of research and development. The software needs to develop according to the needs of organization. Other organization are dependent on third party software’s for hiring. Third party software hiring provider provides common interface for all the organizations using it. This question is important as it will help the researcher to interpret how much organizations are willing to invest in in-house hiring software or third party software. All the respondent responded to this question. 25 (62.5%) respondents stated that they use In-house software for hiring. Rest, 15 (37.5%) stated that reply on third-party software. This will be discussed further in the next chapter, but it is important to note that the majority of companies (Recruitment professionals) surveyed mentioned that they use in-house software for hiring which shadows light on developing in-house Human Resource Management (HRM) software, is still widely practiced in organizations.

Are you familiar with introduction of Artificial Intelligence in Hiring practices?
40 responses

Figure 14 - Familiarity of recruiter’s with AI

All of the respondents answered this question. From the chart above it is obvious that, recruitment professionals are aware of introduction of Artificial Intelligence to hiring. Going deeper into analysis, 25 (67.5%) respondent’s stated that they are aware. This analysis correlates to literature mentioned in the
literature section wherein researcher mentioned about the introduction of AI to recruitment. A further, nine recruiter’s (22.5%) mentioned that they are not aware of such association of AI with recruitment. 10% of respondent stated that they are not sure about the fact but further failed to clarify about it. Therefore, as more respondents agreed with introduction of AI to recruitment, it can be reasoned that according to recruitment professionals AI has entered the recruitment world and helping organization with its applications.

Do the software used for Hiring process in your organisation is based on application of Artificial Intelligence or latest technologies?

Respondents were asked to state that, does the software used for recruitment in their organization is based AI or associated technologies. All of the respondents provided an answer to the question. 20 (50%) respondents stated that they use software for hiring which is based on application of AI. 17.5% of respondents declared that their software is not based on AI. Interestingly, 13 (32.5%) of respondent declared that they use application of AI in hiring to some extend but not fully integrated with AI. This analysis opens door for discussion in the next chapter, but it is important to note that this question ties in with the other questions in survey regarding introduction of AI to recruitment’ in order to gain a greater knowledge of them.

*Figure 15 - Knowing the hiring software’s foundation*
4.4 Data Analysis Three – Analysis of respondents with respect to deeper understanding related to use of AI in recruitment and future of AI in recruitment.

This analysis section will be focused on understanding the response of recruitment professional related to existing and future use of AI in recruitment. In the above sections, data related to introduction of AI in recruitment and understanding background of recruiters, have been gathered. Now, this section will further analyzes the data into deeper levels of information. Following are the question whose responses will be analyzed in following section:

- At how many stages of hiring process do you use such software? (You can select more than one option)
- To what extend do you agree that AI-based software are helping to find best talent for the job?
- Do you think that AI-based software is future for hiring practices?
- Do you think that Artificial Intelligence is easing Human Resource operations?
- Do you now or in future will be interested in seeing AI-based software for hiring practices?

**At how many stages of hiring process do you use such software? (You can select more than one option)**

<table>
<thead>
<tr>
<th>Process</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resume shortlisting</td>
<td>21 (52.5%)</td>
<td></td>
</tr>
<tr>
<td>Online assessments</td>
<td>16 (40%)</td>
<td></td>
</tr>
<tr>
<td>Video assessments</td>
<td>10 (25%)</td>
<td></td>
</tr>
<tr>
<td>Entire Hiring Process</td>
<td>16 (40%)</td>
<td></td>
</tr>
<tr>
<td>Other processes</td>
<td>5 (12.5%)</td>
<td></td>
</tr>
<tr>
<td>None of above</td>
<td>8 (15%)</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 16 - Analysis of AI software used in various levels of recruitment*

Recruitment professionals were asked about the level of usage of AI-based software in their hiring process, to which all the respondents responded. This information is very crucial to collect as it will help the researcher to interpret the reach of AI-based software in hiring process. Various hiring processes which are generally practiced, were mentioned in the survey form. 21 (52.5%) respondents stated that
they use AI-based technology at very primarily stage of hiring i.e. Resume Shortlisting. This response coincides with the literature where it is mentioned that many organizations use AI technology for shortlisting resumes as they receive loads of resume for single job profile. 40% of professionals stated that they use AI technologies for online assessments and entire hiring process. 25% of respondents stated that they use such technology for video assessments. This response is also in conjunction with literature mentioned by the researcher. Five respondents (12.5%) mentioned that they such technology for other hiring processes. Responses to this questions are very important as mentioned earlier and will discussed more deeply in next chapter.

To what extend do you agree that AI-based software are helping to find best talent for the job?

![Pie chart showing responses to the question](image)

**Figure 17 - Analysis of usefulness of AI software**

Respondents were asked that to what extend do they agree with the fact whether AI is helping to find best-fit for their organization, to which, 27.5% stated that they strongly agree and 27.5% stated that they are neutral to the fact. 20% of respondents stated they agree with the fact that AI is helping to find best fit for their organizations. This question has received mixed opinions from the respondents. Respondents might clarify their opinion more clearly in the upcoming questions.
From just agreeing or disagreeing with this question, some of respondents commented their views as-well for this particular question. 24 (61.5%) respondents stated that they think that AI is future for hiring. On contrast, 7 (17.9%) respondents does not think so. One of the respondents did not answered this question. As mentioned earlier respondents commented about their view, it can be analyzed and can be stated that some recruitment professionals are skeptical about future of AI towards recruitment. Skeptics made their views clearly by mentioning their concerns over AI. Some of them thinks that it has
not evolved yet, others think that privacy and control is still the issue with AI. This part will be discussed broadly in next chapter as recruiters have clearly mentioned their view which will help the researcher to compare and contrast the existing work.

**Do you think that Artificial Intelligence is easing Human Resource operations?**

40 responses

![Pie chart showing responses to the question](chart.png)

**Figure 20 - Recruiter’s view on dependency on AI-based software**

Researcher’s intention behind asking this question in survey form is to investigate and build an argument related to AI in entire hiring operations and checking its efficiency towards HR operations. 30 (75%) respondents agreed that AI is easing Human Resource operations. On Contrast, nine respondents denied this. This will be discussed further in the next chapter, but it is important to note that the majority of recruitment professionals surveyed agreed to that AI is easing operations.
This was the last question of survey form. Recruitment professionals were asked about suitability of AI for recruitment and expecting more advances in AI-based software for recruitment, now or in future. It is interesting to see that 32 respondents stated that they are interested in seeing AI-based software for hiring. 4 respondents were not sure about this and further few respondents mentioned their view as-well, which will be discussed briefly in next chapter.

4.5 Findings Conclusion

To conclude, this chapter analyzed the data received from the survey form which collected the primary data needed. The aim of this chapter was to provide an analysis of the findings through presenting and illustrating the findings of the survey descriptively without drawing general conclusions. The next chapter, which is the discussion, will focus in-depth on the findings of the survey.
4.6 Discussions

This chapter will provide a detailed discussion based on the data collected and analyzed in the previous chapter. This chapter will link the results from the previous chapter with earlier literature and theories discussed in the literature review. This chapter will also focus on the research questions and will discuss and provide answers for them through the results collected from survey. As mentioned earlier, the research questions are:

- How efficient are AI-based software or modern technologies in entire HR process?
- Is AI, A new big thing for recruiters?
- Does investing in AI-based software, beneficial?
- Will adopting to AI technologies in recruitment will result in loss of jobs of recruitment professionals?

4.6.1 Discussion One:

This section will be focused on analyzing the data related to background of recruiters and how AI is transforming recruitment. Before be discuss or analyze any data related to AI for recruitment, it is important to know the background of recruiters. For this reason, recruiters were asked that from which sector they belong. It was found that majorly recruiters were from Information technology sector. It is critically important to know that background of recruiters as it will shadow light on the question that, in which sector does AI is embarking its presence? This will also help the future researchers in a way to evaluate that in which sector does investment in AI are more. Therefore, the findings from the survey confirmed that Information Technology sector is were investments in AI are being poured the most. Now the focusing on the research question, ‘How efficient are AI-based software or modern technologies in entire HR process?’ to find an answer to this, question was particularly divided into sub-questions in the survey form. The hiring process comprise of many stages and is a lengthy process. It starts with Resume shortlisting and ends with candidate onboarding. Recruitment professionals were asked about the usage of AI-based software in various levels of hiring. Most of respondents stated that they use such technologies in shortlisting the resume. This affirms with literature review that the resume shortlisting is most time-consuming and tedious job in entire hiring process. Most of the recruiter’s spend their time just in shortlisting the resume and CV’s. But as per the data received, it is quite clear that AI is definitely easing the shortlisting process. The AI software is designed in an efficient manner in which it automatically scans and matches the desire skills for the job profile from large pool of CV’s and resume’s with the help
of pattern-matching, data mining, etc. techniques. Thus reducing the overhead from recruiters. Other processes like video assessments, online assessments, etc. also received positive response from respondents, thus conveying a message that, yes, AI-based software are easing human resource operations. To sum up this argument, recruitment professionals were asked that to what extend do they agree with the fact that AI-based software are able to find best talent available? The ultimate aim of any organization is attract and hire talent which aligns with organizational goals. Maximum respondents agreed to this fact which also confirms that recruiters are trusting these software. This fits with theory put forward that states, AI is gaining recruiter’s confidence in hiring talent. The fact that the majority of recruiters identified AI-based software as the most beneficial in the recruitment, some stated neutral reactions as well, maybe they are not aware of how AI-based software can be helpful in meeting organizations goals.

As the recruitment with help of AI, is in its early stages, recruiters may not know artificial intelligence’s thorough proficiency in the decision making process. If artificial intelligence is to be reciprocally advantageous, the learning process may indicate that applicant and possible organization inputs as regards selection standards examine each other and either enable or disapprove them as a component of the entire e-recruitment practice. (van Esch et al., 2019)

4.6.2 Discussion Two: This will be focused on discussing the future of AI for recruitment. From the findings of the survey, majorly respondents stated that they are keen to see AI in recruitment process in coming days. So it can be stated that AI has future in hiring practices. Recruiters were asked to state their view on future of AI in recruitment. Many responded by stating ‘yes’ to such move, but few expressed their view regarding concern over AI.

In relation to this, many respondents stated their views regarding privacy issue involved with Artificial Intelligence, as AI-driven recruitment, will be handling mission-critical data of an organization and data is power. This concern paves path for an argument which states that, is AI secured? No organization can afford data loss or data breach. So privacy is an issue which is highlighted in this survey. Similarly, other respondents highlighted the issue of cost associated with integrating with AI systems. Though AI has application in many sectors and has improved efficiency, cost associated with AI, is still perceived as a concern. The cost of development of AI systems is expensive if clear business goals are not stated prior to its development. Small to medium enterprises may not afford such huge investments in AI systems as it involves deeper level of expertise with Research and Development (R&D).
Another major issue stated by respondents over the use of AI systems with recruitment is, fear of losing their jobs. The findings of this research may influence organizations decision over adopting AI in their existing HR framework, concerns mentioned by respondents are important for discussion. Respondents stated that, integrating HR systems with AI, might result in losing their own jobs as systems will be preprogrammed and all the decision will be taken by AI systems. Hence, may result in losses of jobs. This scenario is straightly affirms with theories and studies mentioned in literature review. This is important as it proves the literature review mentioned earlier. The findings of this question are important, as respondents who mentioned these concerns may further may not agree to accommodate changes in their workplace. To conclude, this chapter discussed the findings of the survey/questionnaires in relation to the research questions and the literature review. The key finding of this chapter was that, though AI has many advantages and may prove beneficial for organizations hiring practices, concerns like cost, security, maintenance, losses of jobs, etc., are still debatable in the HR community.
CHAPTER 5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

To conclude, the aim of this dissertation was to research about the AI-based software and its usefulness in recruitment and selection process. It also examined the other issues and concerns related to use of AI in recruitment. This dissertation provided the reader with a clear set of objectives and research questions of which it would aim to answer and achieve. This dissertation aimed to provide a balanced literature review with varying perspectives on both the use of AI-based software in recruitment and recruiter’s opinion on the same. This study is mainly focused on recruiter’s perspective towards AI systems. This dissertation then aimed to provide the reader with the methodology surrounding the research, through the use of the Research Onion. Following section briefly summarizes the key findings and discussions of this dissertation:

Artificial intelligence is advancing in an unsurprising sequence, with mechanical largely coming before analytical, the latter chiefly forerunning intuitive, and the latter mainly going ahead of empathetic intelligence. Artificial intelligence will carry out even the intuitive and empathetic undertakings, thus making possible groundbreaking manners of human–machine blending for supplying service. Real artificial intelligence employs a reversed strategy by duplicating the brain’s structure (e.g., via neural networks) and harnessing massive volumes of information to obtain knowledge without assistance. (Kaplan and Haenlein, 2019). Artificial intelligence employs external data collected via big data sources as information for determining intrinsic rules and models by depending on processes from machine learning (Kaplan and Haenlein, 2019). With the rapidly emerging trend of utilizing AI technologies in the business environment in the last two decades the recruitment and selection practices of the HR management will gradually incorporate more AI-based software into its process. The growth of AI provides promising solutions for recruiters to optimize talent acquisition by taking over time consuming repetitive tasks such as sourcing and screening applicants, to improve the quality of the hiring process, eliminate biased-human decisions. AI application in HR recruitment will continue to emerge at a deeper level of intelligence which will significantly affect recruitment and selection jobs as well as core competencies.

Artificial intelligence is prepared to stimulate creativity by intensifying the advancement of groundbreaking products, assisting organizations in obtaining additional revenue streams more swiftly and cutting down superfluous expenses in the process, consequently raising cost-effectiveness (Plastino and Purdy, 2018). Organizations, in future may embrace AI-based recruitment solution to deduce features and to derive likely behaviors in connection with fit and performance (Van Esch et al., 2019).
interviews with (out) an artificial intelligence decision agent can be put into practice for successful candidate screening. (Suen et al., 2019). For job application and selection, artificial intelligence can adopt behavioral and physiological features (e.g., bio-metrics) as a component of the entire decision-making process (van Esch et al., 2019) et al., 2019; Ionescu et al., 2012; Mihăilă et al., 2016; Popescu et al., 2019) but also bringing about a pivotal risk for human employment (Huang and Rust, 2018). The objectives of this study are meet by the findings concluded above. To conclude, though AI has promising applications in recruitment and selection process, it still possess some concerns over its use. Might be in future this concerns and issues will be addressed and a much advanced, cost-effective and more secure, AI systems will be available in industry.

5.2 Recommendations

Based on the findings of this research, researcher would like to recommend that organizations should design a clear and descriptive organizational strategy towards adopting AI into their recruitment process. Also, the concerns mentioned by the respondents related to cost, security, losses of jobs, etc. needs to be addressed. Researcher would like to recommend that, simple and time consuming recruiters job can be replaced by smart AI technologies, enabling recruiters and HR managers to focus more on strategic functions. Furth more, developers of smart AI technologies needs to develop such platforms keeping in mind the budgetary issue of small to medium organization as well, so that they can adopt AI in their recruitment process.
CHAPTER 7. REFERENCES

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**WEBSITES** - https://www.randstadusa.com/technologies/
  https://ideal.com/top-recruiting-software/
CHAPTER 6. APPENDIX

Below is the questionnaire used for the research:

- Email Address (Optional)
- Do you work in a private recruitment agency or HR in an organization/company?
- In which sector does your organization operate?
- Company Name (Optional)
- Do you use modern technologies for e.g. AI-based screening software, Database management software, etc. in your Hiring process?
- Do you have in-house Human Resource Management (HRM) software or you rely on third-party software systems for Hiring?
- Are you familiar with introduction of Artificial Intelligence in Hiring practices?
- Do the software used for Hiring process in your organization is based on application of Artificial Intelligence or latest technologies?
- At how many stages of hiring process do you use such software? (You can select more than one option)
- To what extend do you agree that AI-based software are helping to find best talent for the job?
- Do you think that AI-based software is future for hiring practices?
- Do you think that Artificial Intelligence is easing Human Resource operations?
- Do you now or in future will be interested in seeing AI-based software for hiring practices?

Also following is the link of Google form used for this survey:

https://docs.google.com/forms/d/e/1FAIpQLSdnSjq3o8d03xJyb7mxqh3cyOpIGOU-cyTcHKzq26fgTyoTQg/viewform?usp=sf_link
Below image shows the invitation message sent to recruiters for the survey on LinkedIn:

Are you a developer? Find your next job in Berlin on talent.io - Salaries: £25k-£100k

Karan Bhalget - 11:59 AM
Hi,

Hope my message finds you well. I am Karan Bhalget, currently pursuing MBA from Dublin Business School in Ireland. As part of my research, I am concentrating on the role of technology in the recruitment process. As you belong to the same domain, I request you to please find some time out to fill the linked survey.

Your contribution will be highly appreciated. Please feel free to contact me if you have any question. Thank you.

https://forms.gle/7y4fXb9qOD6dh1YA

Write a message...